A MIXED METHODS STUDY EXAMINING THE EFFECTS OF A GROWTH MINDSET INTERVENTION TARGETING HIGH SCHOOL FOOTBALL PLAYERS

by
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Abstract

The problem of practice (POP) addressed in this study was the high overall number and proportion of high school student-athletes who fall short of meeting NCAA academic initial-eligibility requirements annually. Approximately 20% of all recruited high school football players are academically ineligible coming out of high school. African American high school football players, many of whom come from limited-resource, urban school districts, comprise the largest demographic subset of academically ineligible high school student-athletes. Accordingly, this study focused particularly on low-income and minority high school football players and was thus situated within broader studies related to college access and achievement gaps among low-income and minority students. Based on a review of the literature related to achievement gaps among low-income and minority students and their middle or upper SES and White counterparts, a growth mindset intervention was developed targeting the academic mindset and academic motivation of high school football players. Uniquely, this study sought to examine the effects of a growth mindset intervention specifically designed to be practical, replicable, sustainable, and cost-effective within the context of my professional setting, the national office of the National Collegiate Athletic Association. This study sought to examine whether the growth mindset intervention would lead to a statistically significant increase in academic mindset and academic motivation among participants in the treatment condition.

This mixed methods, explanatory sequential study used a nonequivalent comparison group design where pre- and post- intervention data were collected from a treatment group and a comparison group. Participants were 102 high school football players from

two high schools in Indiana. Quantitative data included survey responses measuring (a) knowledge of NCAA rules, (b) academic mindsets, and (c) academic motivation. Qualitative data were collected through a focus group interview among participants in the treatment condition (n = 5). Though quantitative data did not support the hypothesized effect among participants in the treatment condition, qualitative data from the focus group interview provided insights suggesting an important connection between the experience of being a student-athlete and the principles associated with having a growth mindset.

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The Dissertation Adviser must submit the completed form to the Director(s) of the Doctor of Education Program for inclusion in student's doctoral folder.

Acknowledgements

Growing up, I wasn't particularly fond of roller coasters. Kiddie coasters were fine, but the ones with drops, inversions, and unexpected turns? No thanks. In 2006, however, my wife talked me into riding an indoor, in-the-dark roller coaster at Walt Disney World called Rockin' Roller Coaster. Because it was indoors, I had no idea what was before me: drops, inversions, and unexpected turns. And I loved it! The experience of completing this doctoral program has been very much like riding Rockin' Roller Coaster. If I had known at the beginning of this program how many drops, inversions, and unexpected turns it would take, I may not have gotten on at all. But now that the ride is over, I am so very glad I decided to step on, and so thankful for the people who encouraged me along the way.

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Executive Summary

"There are over 400,000 NCAA student-athletes, and just about all will be going pro in something other than sports," is the tagline used in an often-run public service announcement sponsored by the National Collegiate Athletic Association (NCAA). Data supporting the message make clear the importance of a meaningful academic experience for NCAA student-athletes. Indeed, just 1.2% of all NCAA basketball student-athletes are drafted by the National Basketball Association, and only 1.6% of all NCAA football student-athletes are drafted by the National Football league (NCAA, 2016a). While the NCAA has adopted a number of academic reforms in recent years, comparatively little attention has been given to the academic preparation of high school student-athletes seeking to become NCAA student-athletes. The problem of practice (POP) addressed in this study was the high overall number and proportion of high school student-athletes who fall short of meeting NCAA academic initial-eligibility requirements annually.

For high school student-athletes to qualify to practice, compete, and receive athletically-related financial aid during their first year of full-time enrollment at an NCAA Division I or Division II institution, they must meet minimum academic initial-eligibility standards as certified by the NCAA Eligibility Center. Approximately 20% of all recruited high school football players are academically ineligible coming out of high school. African American high school football players, many of whom come from limited-resource, urban school districts, comprise the largest demographic subset of academically ineligible high school student-athletes. Accordingly, the POP addressed in this study focused particularly on low-income and minority high school football players

and was thus situated within broader studies related to college access and achievement gaps among low-income and minority students.

Theoretical Framework

Because a person's cognitive processes influence and are influenced by behavior and by external influences (Bandura, 1986), the social cognitive theory provided important perspectives through which to inspect individual factors associated with achievement gaps. As it relates to academic achievement, individuals inclined toward a fixed mindset often view assessments as situations in which they are judged as capable or incapable of a given task; individuals inclined toward a growth mindset, on the other hand, view assessments as opportunities for improving or acquiring certain dispositions or skills (Dweck & Leggett, 1988; Dweck, Chiu, & Hong, 1995). Those inclined toward a growth mindset stand a better chance of improving academic achievement through the types of goals they set and subsequent participation in academic behaviors promoting success (Dweck & Leggett, 1988; Chen & Pajares, 2010).

In a critical literature review of the relationship between noncognitive factors (i.e., behaviors, skills, attitudes, and strategies that influence academic achievement) and academic performance, Farrington et al. (2012) developed a hypothesized framework of how five specific factors (i.e., academic mindsets, social skills, academic perseverance, learning strategies, and academic behaviors) interact to affect academic achievement. While acknowledging that these factors may be mutually reinforcing, the authors argued that academic mindsets stand alone as the only factor directly impacting each of the remaining noncognitive factors associated with academic performance.

Research Question

Interventions targeting a student's implicit theory of intelligence (academic mindset) can influence academic motivation and academic achievement (Blackwell, Trzesniewski, & Dweck, 2007; Dweck & Leggett, 1988; Dweck, Walton, & Cohen, 2011; Farrington et al., 2012; Walton, 2014; Yeager & Walton, 2011). Academic mindset interventions are psychologically precise (Walton, 2014) as well as contextually developed, subtle, and recursive (Yeager & Walton, 2011). When students come to understand that their brain is like a muscle that gets stronger with use (i.e., intelligence is malleable), a shift in their implicit theory of intelligence may occur. The primary research question for this study was: To what extent did participants' academic mindset and academic motivation differ following the treatment group's participation in a growth mindset intervention targeting high school football players compared to a business-as-usual comparison group? Secondarily, this study examined the extent to which participants' knowledge of NCAA academic eligibility requirements changed as a result of participating in the intervention.

Method

This study employed a quasi-experimental, nonequivalent comparison group design where pre- and post-intervention data were collected from a treatment group and a comparison group (Shadish, Cook, & Campbell, 2002). Participants included 102 high school football players in grades 9-12 from two high schools in Indiana. One of the two participating schools was randomly assigned to the experimental condition while the other was assigned to the comparison condition. The intervention included two components: (a) receipt of an informational flyer and poster and (b) a guest speaker.

Regardless of assigned condition, each component included information related to NCAA academic requirements; activities in the treatment condition, however, were infused with messaging that intelligence is malleable. This mixed methods, explanatory sequential study (Creswell & Plano-Clark, 2007) examined both quantitative and qualitative data as well as the extent to which the intervention was executed as designed (i.e., fidelity of implementation).

Findings

After controlling for pre-intervention differences between groups, the treatment group did not significantly differ from the comparison group on post-intervention academic mindset or post-intervention academic motivation. Qualitative data from the focus group interview, however, revealed important insights suggesting a strong connection between the experience of being a student-athlete and the principles associated with having a growth mindset. Additionally, focus group interview participants indicated new knowledge and awareness of academic performance and its relationship with athletic recruitment as well as the college admission process. With recognition that unfamiliarity with the college admission process is a barrier to college for many among low-income and minority students, the NCAA should strongly consider using its sizeable influence to ensure that high school student-athletes know the steps necessary to attend college. Future studies may inform a more refined understanding of growth mindset messaging that can be used to support these efforts.

Chapter 1

Academic Ineligibility of Prospective NCAA Student-Athletes

The relationship between athletics and academics has been debated for over a century (Oriard, 2012). While a great deal of time and resources have been devoted to academic reform initiatives at the collegiate level, comparatively little attention has been given to the academic support offered to high school student-athletes seeking to become NCAA student-athletes. Data collected by the NCAA research staff show that just 3.4% of approximately 500,000 high school basketball student-athletes will play at an NCAA institution; only 1.2% of all NCAA basketball student-athletes are drafted by the National Basketball Association (NBA). In the sport of football, 6.5% of the one million high school football student-athletes will play at an NCAA institution; only 1.6% of all NCAA football student-athletes are drafted by the National Football league (NFL) (NCAA, 2016a). With the high probability that high school student-athletes will "go pro" in something other than sports, the importance of academic achievement is of tremendous consequence.

The latest chapter in the ongoing conversation related to academic achievement of student-athletes began in 2003 with a series of academic reform initiatives championed by National Collegiate Athletic Association (NCAA) President Myles Brand. Brand (2006) argued that intercollegiate athletics is integral to the fabric of higher education and serves as an important vehicle promoting academic and personal success of student-athletes. Reform initiatives put in place in 2003 included (a) the Academic Progress Rate, a team-based metric for measuring student-athletes' progress toward their degrees, (b) the Graduation Success Rate (GSR), a measure designed to provide more accurate

data than the federal graduation rate, and (c) increased academic eligibility requirements for incoming college freshmen.

As a result of these reforms, the overall GSR for Division I student-athletes increased from 74% in 1995 to 86% in 2008 (NCAA, 2016b). Of note, the GSR increased during that same period from 51% to 69% for African American males and from 71% to 83% for African American females. Because the GSR cannot be applied to the general student population, it is useful to compare student-athletes to the general student population using the federal graduation rate, which shows NCAA Division I student-athletes entering college in 2008 graduated from college at a rate of 67%, which was two percentage points higher than the general student populations among Division I institutions. Notably, African American male student-athletes graduated 12 percentage points higher than African American males in the general student body population; African American female student-athletes graduated 13 percentage points higher than African American females in the general student body population (NCAA, 2016b).

Problem of Practice

Since 1965, initial-eligibility requirements have existed to ensure that high school student-athletes are academically prepared for the rigors and time demands they will face at a four-year institution (Pickle, 2008). For high school student-athletes to qualify to practice, compete, and receive athletically-related financial aid during their first year of full-time enrollment at an NCAA Division I or Division II institution, they must meet minimum academic initial-eligibility standards as certified by the NCAA Eligibility Center.

NCAA proprietary data show that approximately 200,000 high school students annually register with the Eligibility Center with the goal of becoming NCAA Division I or Division II student-athletes. Among those students, approximately 90,000 are actively recruited by a Division I or Division II college or university and thus receive a final academic certification. Of those 90,000 students who receive a final academic certification, approximately 13% annually fall short of meeting initial-eligibility academic requirements and, in many cases, miss the opportunity for higher education. The POP addressed in this study was the high overall number and proportion of high school student-athletes who fall short of meeting NCAA academic initial-eligibility requirements annually. In particular, approximately 20% of all recruited high school football players are academically ineligible coming out of high school. African American high school football players, many of whom come from limited-resource, urban school districts, comprise the largest demographic subset of academically ineligible high school student-athletes. Accordingly, the POP addressed in this study focused particularly on low-income and minority high school football players and was thus situated within broader studies related to college access and achievement gaps among low-income and minority students.

The Intersection of Athletics and Academics

Poor academic achievement and access to financial aid are generally viewed as two predominant barriers to college access among low-income and minority students (Advisory Committee on Student Financial Assistance, 2006). Given that NCAA academic initial-eligibility requirements are tied directly to students' academic preparation and financial aid, the nexus of schooling and sport in American society

provided a unique lens through which to approach questions related to college readiness, access, and success, especially as it relates to low-income and minority students. Examining the construct of NCAA academic initial-eligibility provided insight into the history of and rationale for the existence of academic standards governing participation in NCAA intercollegiate athletics. Because students' academic initial-eligibility statuses are determined by their high school academic achievement, this study also explored theoretical, empirical, and contextual research related to achievement gaps and college access, specifically among low-income and minority students.

Research linking high school athletics participation and academic achievement is mixed. Though several studies have established a correlation between high school sports participation and academic achievement, research seeking to establish a causal relationship between high school athletics participation and academic performance has been inconclusive (Braddock, 1981; Marsh, 1992; Fejgin, 1994; Marsh & Kleitman, 2003; Harris, 2014). For example, Jordan (1999) studied the relationship between athletics participation and variables related to academic achievement among 15,000 10th grade students from across the United States using data from the National Education Longitudinal Study (NELS) of 1988. Athletics participation had a significant positive relationship with GPA, school engagement, and academic self-confidence. In another example, Shernoff and Vandell (2007) studied the effects of athletics participation among 165 middle school students. Using hierarchical linear modeling, the authors found that participation in organized sports carried a medium effect size for intrinsic motivation and a large effect size for school engagement.

Research conducted by Eitle and Eitle (2002), on the other hand, painted a different picture. Using NELS data of nearly 5,000 students between 1988 and 1990, the study found that participation in basketball and football had a negative relationship with standardized test scores and no significant association with students' grades. Additionally, participation in sports other than basketball and football was associated with higher grades for White students but lower grades for African American students.

Debate surrounding the question of "eligibility" in intercollegiate athletics can be traced to a boat race between Harvard and Yale in 1852, in which Yale objected to Harvard's use of a coxswain who had already graduated (Oriard, 2012). Issues related specifically to *academic* eligibility can be traced to the first convention of the NCAA in 1906, at which colleges and universities collectively agreed to require student-athletes to be enrolled as full-time students as prescribed by their respective institutions (Oriard, 2012). The birth of initial-eligibility, which grants students the ability to practice, compete, and receive athletically-related financial aid during the first year of full-time enrollment at an NCAA college or university, came in 1965 with the adoption of the "1.6 Rule." This rule required institutions to predict an incoming student could do C-level work (Pickle, 2008). Since that time, the construct of academic initial-eligibility has evolved from concerns related to competitive equity toward a greater emphasis on college readiness and college graduation through incremental increases adopted by the NCAA membership (Pickle, 2008).

While longitudinal research shows that the increases in academic initial-eligibility requirements over the decades have been associated with increased college graduation rates (Petr & Paskus, 2009), with each increase controversy followed. Questions

pertaining to *race, access,* and *equity* have been central to the topic of NCAA initial-eligibility for decades (Crowley, 2006). Most notably, previous iterations of NCAA Division I academic initial-eligibility standards required minimum standardized test scores on either the SAT or ACT. In 1986, a rule commonly referred to as "Prop 48" (short for Proposal No. 48 at the 1983 NCAA Convention) required students to earn at least a 700 on the SAT or 15 on the ACT (Pickle, 2008). Because these "cut scores" carried a disproportionately negative impact on minority populations (Crowley, 2006), the NCAA adopted in 2003 an academic initial-eligibility index. The index, commonly referred to as the Division I "sliding scale," allowed prospective student-athletes with comparatively low standardized test scores to satisfy academic initial-eligibility requirements by presenting higher grade point averages (GPA) in core courses.

Through the academic initial-eligibility certification process, the NCAA Eligibility Center collects academic data from approximately 90,000 high school student-athletes per year, which includes students' individual course titles, grades, and credits in grades nine through twelve. These pre-enrollment data, when combined with students' college-level academic data, provide the NCAA research staff and governance committees the ability to study the academic trajectories of students from the time they enter high school until they exit their Division I institution (Petr & McArdle, 2012). With nearly 2 million academic records collected since 1994, Petr and Paskus (2009) argued that these data represent one of the largest and most comprehensive portfolios of academic trajectories available in the United States.

Based on these data, Petr and McArdle (2012) identified three findings related to initial-eligibility requirements and prediction of first-year success. First, high school

core-course grades are 2-3 times more predictive of first-year success than standardized tests. Second, the combination of high school grades and standardized tests is a better predictor of first-year success than either of the two variables in isolation. Finally, a core-curriculum GPA is a better predictor of first-year success than the overall high school GPA. With these findings as the foundation for initial-eligibility legislation, the NCAA governance structure regularly reviews these longitudinal data sets to ensure that initial-eligibility requirements are aligned with broader goals related to college graduation rates (Petr & McArdle, 2012).

Currently, academic initial-eligibility for Division I is based on students earning credit in 16 "core-courses" (high school courses approved by the NCAA Eligibility Center) with a GPA of 2.000 or higher and a corresponding SAT or ACT score pursuant to the Division I sliding scale as shown in Table 1 (NCAA, 2016c). Division II, on the other hand, simply requires students to earn either an 820 SAT or a 68 (sum score) ACT, along with a core-course GPA of 2.000 or higher in 16 core-courses (NCAA, 2016d).

Table 1

Abbreviated NCAA Division I Sliding Scale.

Core-Course GPA	SAT (Critical Reading & Math)	ACT (sum score)
2.475	830	69
2.450	840	70
2.425	850	70
2.400	860	71
2.375	870	72
2.350	880	73
2.325	890	74
2.300	900	75
2.275	910	76
2.250	920	77
2.225	930	78
2.200	940	79

Note: Adapted from the NCAA Division I Manual. Copyright 2015 by the NCAA.

Students who pursue athletic prospects at the expense of academic and career preparation typically achieve neither and are said to experience the "double bind of marginality," with few prospects for social mobility (Singer & May, 2011, p. 311). To understand why so many high school student-athletes each year fail to meet these requirements, it is important to explore historical, theoretical, and empirical research related to achievement gaps among low-income and minority populations.

Gaps in Academic Achievement

As education historian John Rury (2012) stated, "One of the great values in studying history…is to better appreciate the dynamic quality of one's own time, by examining the challenges faced by those who lived in earlier periods" (p. 3). From a historical perspective, Gelber (2007) noted that in the common school movement of the mid-nineteenth century, only a small number of schools provided adequate pre-college preparation, and those that did catered primarily to a small constituency. Costly private schools and tutors provided the primary path to college and were available primarily to White male students during this era. Even as access to secondary education expanded in the early twentieth century, schools with high proportions of African American students struggled with inadequate resources in both the northern and southern parts of the country. At the same time, low-income and minority students were commonly placed in non-academic tracks, continuing the trend of wealthy White students receiving the surest path to college despite increasing numbers of high school graduates from all backgrounds (Gelber, 2007). Progress was made in the mid-twentieth century with the Brown v. Board of Education (1954) decision, which brought black education to the forefront of the American consciousness (Kim & Rury, 2007). Yet evidence of inequities can still be

observed through the overrepresentation of minority students placed in special education classes and the underrepresentation of minority students in advanced-level courses (Ford & Moore, 2013).

The collective impact of these barriers is often referred to as the racial achievement gap. Gaps in academic achievement among racial groups can be examined from multiple perspectives. The educational measures most commonly used to examine gaps in achievement among racial groups include high school graduation rates and proficiency rates on the National Assessment of Educational Progress (NAEP; Balfanz & Letgers, 2004; Vanneman, Hamilton, Anderson, & Rahman, 2009). Because NCAA initial-eligibility is based on the relationship between high school academic performance and its linkage to first-year college success, it is useful to examine achievement gap research specifically related to the college transition, namely college participation rates, college entrance examinations, and high school GPA.

While college participation rates between 1980 and 2008 increased across all racial groups (Aud, Fox, & KewalRamani, 2010), the rate of change was not equal among racial groups. College participation rates among White students increased from 50% to 72%, while college participation rates among black and Hispanic students reached only 56% and 62%, respectively (Aud et al., 2010). The gap in college participation rates cannot be attributed to a lack of desire. Between 1980 and 2002, the percentage of students who expressed a desire to earn a bachelor's degree rose from 40% to 80%, with low-income students registering the greatest increase in college aspiration among all income groups (Roderick, Nagaoka, & Coca, 2009). To understand barriers to college access and success among students from Chicago Public Schools, Nagaoka, Allensworth,

Stoker, Correa, and Coca (2006) used data from the National Student Clearinghouse (NSC) to examine four-year college enrollment rates and six-year college graduation rates among students who enrolled in a four-year college immediately after graduation from high school. The authors analyzed students' unweighted high school GPAs, the number of honors and AP courses completed, and test score results from the eleventh grade, and concluded that students' GPAs and ACT scores constrained college access and undermined the chances of graduating if enrolled. Additionally, the authors noted that access to rigorous coursework and inadequate guidance related to the college selection process were barriers to college access and success. Building on these findings, Roderick et al. (2009) synthesized research related to college access and success among students from urban schools and attributed the so-called aspirations-attainment gap to three primary barriers: (a) poor academic preparation as measured by achievement tests and GPAs, (b) college costs and lack of access to sufficient financial aid, and (c) unfamiliarity with the college admission process.

For high school student-athletes, two of these three barriers are mitigated at least in part by the nature of the athletics recruiting process. First, the admission process is often facilitated by coaches and athletics staff at the recruiting institution(s), a benefit not available to traditional college applicants. Second, because the athletic recruiting process generally includes written offers of athletically-related financial aid, high school student-athletes face fewer obstacles related to tuition, room, and board than traditional college applicants. This leaves poor academic achievement as the most significant remaining barrier to college for high school student-athletes.

A longitudinal examination of NAEP transcript data from graduating high school seniors between 1990 and 2005 indicated minority students' GPAs lagged behind their peers (Roderick et al., 2009). During that same time, the authors also found that GPAs for graduating White students rose from 2.73 to 3.05, whereas minority students' GPAs remained below a 3.0, a key benchmark for college success. It is unlikely that the increase in GPA for White students is a product of grade inflation. Zhang and Sanchez (2013) examined high school GPAs among high school graduates from more than 11,000 public high schools between 2004 and 2011. While the authors found some instances of school-level variation in GPAs, they found little evidence of grade inflation. Further, differences in GPAs could not be attributed to family income or race.

Beyond students' GPAs, results from college entrance examinations provide another indicator of the achievement gap among low-income and minority students. According to its annual report, ACT found that African-American students lag far behind their peers in meeting ACT's benchmarks for college readiness, with only 5% of students meeting all four subsection benchmarks (ACT, 2013). Furthermore, more than 50% of African-American, American Indian, and Hispanic students failed to meet any of the college-readiness benchmarks (ACT, 2013).

In summary, despite increased college aspiration rates among low-income and minority students, college participation rates have remained steady (Aud et al., 2010). Generally, this gap in college participation is attributed to three primary barriers: (a) poor academic preparation, (b) access to sufficient financial aid, and (c) unfamiliarity of the college admission process (Roderick et al., 2009). As it relates specifically to high school football players, the athletics recruiting process helps mitigate insufficient access

to financial aid and unfamiliarity with the college admission process, leaving poor academic achievement as the primary barrier of interest to this POP. Accordingly, the following section explores possible factors and causes associated with gaps in academic achievement among low-income and minority students.

Contributing Factors and Underlying Causes Associated with Achievement Gaps

It is clear that no single cause, factor, or correlate can adequately explain gaps in academic achievement among racial groups. Frameworks for understanding certain causes and factors associated with achievement gaps vary in complexity and scope. Ford and Moore (2013) examined issues related to achievement gaps among high-ability African American males and noted that these gaps are typically the product of "many intricate and interactive factors that collectively take their toll on the educational experiences and subsequent performance" (p. 400) of students. To better understand the vast landscape of contributing factors and underlying causes associated with achievement gaps, a review of the literature is organized into the following sections: societal factors, family background and early childhood education, school resources, and individual factors.

Societal Factors. At the broadest level, when students believe society does not expect them to succeed academically, they perform poorly in the classroom (Holcomb-McCoy, 2007). Scholars have argued that historical racism, prejudice, and discrimination are so firmly embedded within American culture that they negatively impact academic achievement among low-income and minority students, regardless of academic potential (Ford & Moore, 2013). Defining racism as a construct consisting of social, political, economic, and legal factors that determine which groups receive the best and least of

society's resources, Lewis, James, Hancock, and Hill-Jackson (2008) claimed that many researchers cite race as an important variable when examining academic achievement but avoid or dismiss racism entirely.

Despite the Supreme Court's ruling in Brown v. Board of Education (1954), schools remain economically and racially unequal (Borman et al., 2004), putting even students with high academic potential at risk of low achievement. Disparities in school funding have become so stark that former U.S. Education Secretary Arne Duncan described America's school systems as "fundamentally separate and unequal" (Klein, 2015). Trends in school segregation between the 1960s and 1990s are associated with academic performance among African American students. As desegregation efforts in the 1970s and 1980s progressed, African American students experienced achievement gains. These gains, however, slowed, and the gap once again grew as desegregation efforts slowed in the 1990s (Lee, 2002). More recently, school segregation has been linked to high school performance as measured by performance on Algebra I and English I end-of-course examinations. A study of test outcomes from nearly 135,000 students in North Carolina during the 2007-08 school year showed racial isolation was associated with lower test scores (Sharma, Joyner, & Osment, 2014).

In addition to the impact of racial segregation on academic performance, students' perceptions of how their respective race and culture is portrayed in popular culture also affect academic achievement. Images and other depictions of professional African American athletes are particularly important to examine in the context of high school student-athletes' academic performance. In the realm of professional sports, African Americans are often stereotyped as athletically superior to White athletes but

intellectually inferior. These images are woven so deeply into the development of racial identities for African Americans males that the overemphasis on athletic pursuits negatively impacts academic achievement (Harrison, 2001; Harrison, Harrison, & Moore, 2002; Hodge, Harrison, Burden, & Dixson, 2008). The reality that many African American males see sports participation as one of a few acceptable opportunities for social mobility in a culture perceived to be rooted in racism and discrimination (Sailes, 1996) underscores the importance of this study.

Family Background and Early Childhood Development. It was commonly presumed during the Civil Rights era that insufficient school resources for low-income and minority students were the primary source of poor school performance. In the seminal study commonly referred to as the "Coleman Report," Coleman et al. (1966) studied school segregation and achievement gaps among a national sample of approximately 650,000 students and found that family background influenced academic achievement to a greater degree than school resources. This report, requested by Congress as part of the Civil Rights act of 1964, showed that schools in the south and in urban areas were highly segregated and that African American students scored approximately one standard deviation below White students on standardized exams. In a study marking the 40th anniversary of the Coleman Report, Gamoran and Long (2006) noted that debate over the relationship between family background and school resources on student achievement has been ongoing since its publication. The authors showed that while school segregation and achievement gaps between African American and White students had narrowed since the Coleman Report was originally published, the gaps remained substantial.

To better understand the effects of family background on student achievement, it is helpful to examine when and where signals of gaps first appear. For decades, educators and policy makers have focused on the readiness gap, a term generally used to describe students from low socioeconomic backgrounds who arrive in kindergarten or the first grade lacking skills and aptitudes held by peers in higher socioeconomic status groups (Dotterer, Iruka, & Pungello, 2012). Consequently, significant investments from federal and state governments and other charitable organizations have been made in early childhood developmental programs. The federal Head Start program, the largest and most visible program of its kind since its founding in 1965, provides early childhood education to low-income and minority students focused on literacy development, cognition, and learning strategies. Studies examining the efficacy of this and similar programs have been mixed. Notably, the Head Start Impact Study Report (U.S. Department of Health and Human Services [DHHS], 2010) followed nearly 5,000 3- and 4-year old children in a randomized control study and showed that participation in the Head Start program had statistically significant results on every measure studied. However, by the time these students reached the first grade, only a few statistically significant differences remained.

While evidence shows the readiness gap among students from low SES backgrounds can to some degree be mitigated through intervention programs, the fading impact of these programs as students advance should not be considered an indictment of their collective efficacy. Summer learning loss offers a compelling insight here. In a study involving 20 elementary schools in Baltimore, Alexander, Entwisle, and Olson (2001) followed the academic trajectories of 790 students from when they began first

grade in the fall of 1982 through the spring of 1987. The participants included representation from 20 schools, including six predominantly African American schools, six predominantly White schools, and eight integrated schools. Viewed by SES, 14 schools were considered inner city or working class, while the remaining six were considered middle class. Data from the California Achievement Test at the beginning and end of each academic year showed comparable growth across all students during the academic year. However, students from upper SES groups saw continued growth during summer, while lower SES students' achievement remained unchanged. Highlighting the important role of parental engagement, the authors argued that students from higher SES backgrounds were afforded exposure to books, libraries, and other enrichment activities not readily available to students from lower SES groups (Alexander et al., 2001).

These signals point to deeper-rooted issues affecting student achievement. As noted briefly by Alexander et al. (2001), the impact of poverty on student achievement is profound. According to 2013 data from the United States Census, one in five children under the age of 18 lives in poverty (DeNavas-Walt & Proctor, 2014) with one in three African American children living in food-insecure homes (Coleman-Jensen, Nord, Andrews, & Carlson, 2011). Children living in poverty are subject to a host of negative factors that may influence academic achievement, including developmental delays, poor health, anxiety, depression, inadequate childcare, exposure to community or domestic violence, and frequent mobility (Brooks-Gunn & Duncan, 1997; Slack & Yoo, 2005; Rosenberg, Zhang, & Robinson, 2008; Engle & Black, 2008). Evidence also shows a linkage between lower SES, aggression, and anxiety and depression (Spencer, Kohn, & Woods, 2002; Molnar, Cerda, Roberts, & Buka, 2008).

Home learning conditions among low SES families can also impact academic achievement. By the age of three, a child from a lower SES family has typically heard 30 million fewer words than his or her peers from higher SES backgrounds (Hart & Risley, 2003). This dynamic is related to parental educational attainment, which has been linked to poor achievement among students from lower SES backgrounds. A child's early academic skills on average are higher when parents have more years of schooling (Gennetian, Magnuson & Morris, 2008). Parental engagement in a child's education is also an important contributor to academic success and has been attributed to lower rates of high school dropout and increased on-time high school graduation (Lee and Bowen, 2006; Barnard, 2004).

Students who overcome the barriers and obstacles associated with lower SES backgrounds and perform at the same level as their wealthier peers may still choose not to enroll in college. Even among students who are equally or more academically prepared to attend a four-year college or university, data show that low SES students enroll at just half the rate as their wealthier counterparts (Advisory Committee on Student Financial Assistance, 2013). From an economic perspective, the capital demand framework suggests that many students from low SES backgrounds determine whether to pursue a college degree based on its perceived benefits (Long, 2007). Because many low-income students have significant unmet financial need and believe college is unaffordable, they are less likely to prepare themselves academically while in high school (Long & Riley, 2007). Students who do not prepare themselves academically for college based on the belief that it is unaffordable place themselves in a precarious position when the doors of athletic recruitment open financial doors that were previously closed.

The athletic recruiting process for many high school student-athletes does not begin until the junior or even the senior year of high school. By this time, the damage of poor grades early in high school is not easily corrected, leaving students unable to capitalize on the availability of athletically-related financial aid. Earlier and more targeted efforts designed to promote academic achievement among high school student-athletes may expand college access among low-income and minority students.

School Resources. Although longitudinal research has repeatedly shown student achievement is influenced to a greater degree by family background than by school quality (Coleman et al., 1966; Gamoran & Long, 2007), students are not impervious to the effects of low-resource schools. Too often, students with the greatest need for strong school environments face unsafe schools and large class sizes. Teacher quality is generally considered the most influential school factor impacting student achievement. Using data from a 50-state survey of policies as well as achievement data from NAEP tests, Darling-Hammond (2000) found that teacher preparation and teacher certification were the strongest correlates of student achievement after controlling for student poverty and language status. Despite data showing the importance of qualified instructors, low-income and minority students, particularly from urban areas, are more likely to be placed in classrooms with the least skilled teachers. In many cases, these students are subjected to teachers who are new or teaching out of their certification area (Darling-Hammond, 2000; Lankford, Loeb, & Wyckoff, 2002).

Emerging research related to the racial makeup of the teacher workforce is gaining attention for its linkages to academic achievement. Egalite, Kisida, and Winters (2015) examined state test scores from over 3 million students in Florida between 2001–

2002 and 2008-2009 and found small but significant positive effects when students were taught by teachers of the same race. According to Bireda and Chait (2011), however, minority teachers comprise less than 15% of the teacher workforce. The gap between the percentage of minority students and the percentage of minority teachers in the U.S. school system cannot be attributed to low recruitment of minority teachers. Using data from the National Center for Education Statistics' (NCES) nationally representative Schools and Staffing Survey and its longitudinal supplement, the Teacher Follow-up Survey, Ingersoll and May (2011) showed the gap between the percentage of minority students and the percentage of minority teachers is instead due to high turnover rates among minority teachers. The authors noted that issues related to the level of collective faculty decision-making and individual classroom autonomy were the primary reasons minority teachers left the profession.

The lack of adequate school counseling staff available to support students in low-resource school districts further exacerbates the problem related to school personnel. For example, the American School Counseling Association (ASCA) recommends an optimal student-to-counselor ration of 250:1, yet the national student-to-counselor average is 471:1, with some school districts as high as 1,000:1 (ASCA, 2014). Lapan, Gysbers, Stanley, and Pierce (2012) studied the effects of student-to-counselor ratios among 243 high-poverty schools in Missouri. Among high-poverty schools with the recommended student-to-counselor ratio of 250:1 or higher, the authors found statistically significant differences in student attendance and graduation rates.

Developing a college-going culture aimed at increasing social capital related to the college admission process often falls to school counselors. Using social capital

theory as a framework, Bryan, Moore-Thomas, Day-Vines, and Holcomb-McCoy (2011) examined data from the NELS of 2002 to understand how interaction between students and school counselors influenced students' college application rates. The number of school counselors and student contacts were significant predictors of college application rates. Yet school counselors are burdened with increasingly complex responsibilities, including course scheduling, standardized test administration, and social and emotional counseling (Amatea & Clark, 2005). This leaves little time for interactions related to students' pursuit of higher education and in particular interactions related to academic requirements for participation in NCAA athletics.

A final school factor of particular interest to this study is the impact of academic rigor and course enrollment patterns on academic achievement. Ford and Moore (2013) examined research literature related to urban educational settings, noting that a lack of rigor within the curriculum and access to gifted and/or Advanced Placement courses presents significant barriers to academic achievement. In a sobering counterpoint, they found that minority students are placed in special education classes at high rates. The lack of quality college preparatory courses, placement in academically inappropriate courses, and lack of academic rigor can individually and collectively have an adverse impact on the academic achievement of low-income and minority students. This is particularly problematic for prospective NCAA student-athletes, as initial-eligibility rules require students to satisfy a prescribed distribution of college preparatory courses. With recognition that people are both products and producers of their environment, the following section moves beyond the school environment to explore individual factors impacting academic achievement.

Individual Factors. Because a person's cognitive processes influence and are influenced by behavior and by external influences (Bandura, 1986), it is helpful to explore aspects of social cognitive theory, which provide important perspectives through which to examine individual factors associated with achievement gaps. Fredricks, Blumenfeld, and Paris (2004) argued that academic achievement is affected by academic engagement, which is associated with three related theoretical constructs: (a) behavioral engagement, (b) emotional engagement, and (c) cognitive engagement. Behavioral engagement is generally described in terms of positive conduct, such as following classroom rules and norms, participating in school-related activities, displaying academic effort, and contributing to class. Demonstration of these behaviors typically results in greater commitment to the academic institution and thus academic engagement. Several studies have shown a positive relationship between behavioral engagement and various measures of academic achievement (Marks, 2000; Furrer & Skinner, 2003). Emotional engagement describes affective reactions in the classroom, such as happiness, anxiety, and interest, each of which can be directed toward the school, the teacher, classmates, or a student's coursework. Varying associations have been shown between emotional engagement and academic achievement (Skinner, Wellborn, & Connell, 1990; Pintrich & De Groot, 1990). Cognitive engagement, defined as strategies students use to plan, monitor, and evaluate their learning, has been associated with improved academic achievement across multiple indicators of academic achievement (Fredricks et al., 2004).

While behavioral and emotional engagement are important aspects of academic engagement, cognitive engagement is of greater consequence to this study given its strong connection with course grades (Greene & Miller, 1996). Because monitoring

one's learning is an important part of cognitive processing (Bandura, 1986), it is important to understand the relationship between self-regulated learning (SRL) theory and academic achievement.

SRL theory examines the processes by which students attain knowledge (Zimmerman, 1989). Self-regulation is not a skill or ability but rather a proactive, self-motivated process in which academic skills are developed through mental abilities. While all learners monitor their learning to some degree, Zimmerman (2002) noted three features that distinguish self-regulated learners. Self-regulated learners are (a) aware of their strengths and limitations, (b) guided by personally-set goals, and (c) able to monitor the effectiveness of their learning strategies and adjust accordingly so as to achieve their desired academic outcomes.

The self-regulation process can be thought of as a three-phase cycle beginning with the forethought phase, followed by the performance phase, and finally ending with the self-reflection phase (Zimmerman, 2008). During the forethought phase, learners analyze the task before them and may set goals, plan ahead, and consider the expected outcomes of learning. For example, a learner might ask when and where they will complete a task and determine what resources may be needed to complete the task. During the performance phase, the learner monitors progress toward the learning objectives. In this phase, the learner might evaluate whether appropriate time is being devoted to a task, whether they are on track to accomplishing the task objectives, or whether the current approach is working. After working toward accomplishing the task, the learner enters the self-reflection phase by evaluating the progress made and

considering whether alterations to subsequent strategies are necessary (Zimmerman, 1989; 2002; 2008; Zimmerman & Campillo, 2003).

Student reflection on the effectiveness of their strategies enhances their self-satisfaction and self-motivation (Zimmerman, Bandura, & Martinez-Pons, 1992). A self-motivated individual who experiences success through certain self-regulatory strategies is therefore likely to attribute success to those strategies and thus likely to be motivated to use them again. This raises an important issue with respect to the impetus of self-regulatory processes.

Self-motivation and goal setting are essential elements of the initial, forethought, phase of the SRL cycle, but not all students are self-motivated nor do all students set goals that foster self-regulation. The development of self-regulation is commonly initiated through interactions between individuals, such as a teacher initially supporting a student's efforts to carry out a task or behavior using a particular strategy (Bell & Pape, 2014). However, not all students are fortunate enough to interact with adults who are willing and able to provide such direction. Additionally, it is often assumed that students develop goals or standards against which comparisons can be made for determining whether the learning process is effective (Pintrich, 2004). However, it cannot be assumed that all goals are oriented toward SRL. Because self-motivation and goal setting play such essential roles in developing SRL, it is important to explore the underlying psychological processes influencing an individual's motivational behaviors.

By examining cognition-affect-behavior and its effects on adaptive functioning, Dweck and Leggett (1988) argued that individuals' implicit beliefs about intelligence directly impact the types of academic goals they set and, thus, their motivational

processes. The authors began by showing that helpless and mastery-oriented individuals, regardless of academic ability, have different goal orientations. Helpless individuals (those who tend to avoid challenges) perceive assessment situations as measures of competence or incompetence and therefore pursue performance-oriented goals to gain positive judgments and avoid negative ones. In contrast, mastery-oriented individuals (those to tend to seek challenges, even in the face of failure), view assessment situations as opportunities to acquire new skills or extend their mastery and thus pursue learning-oriented goals to increase competence. The authors then demonstrated that the best predictor of an individual's goal orientation is his or her implicit theory of intelligence. Individuals with an incremental theory of intelligence, one in which they believe their intelligence is malleable, increasable, and controllable, were more likely to adopt mastery-oriented goals than individuals with an entity theory of intelligence in which individuals believe their intelligence is rigid and unmalleable (Dweck & Leggett, 1988).

The terms "growth mindset" (incremental theory of intelligence) and "fixed mindset" (entity theory of intelligence) were used in the publication *Mindset: The New Psychology of Success* (Dweck, 2006) and will be used in this study. As it relates to academic achievement, individuals with a fixed mindset often view assessments as situations in which they are judged as capable or incapable of a given task; individuals with a growth mindset, on the other hand, view assessments as opportunities for improving or acquiring certain dispositions or skills (Dweck & Leggett, 1988; Dweck, et al., 1995). Behaviorally, those inclined toward a fixed mindset are drawn to demonstrations of mastery that maximize positive judgments, gravitating toward easier tasks to avoid negative judgments (Table 2). Those inclined toward a growth mindset, on

the other hand, prefer tasks that maximize opportunities for growth and the development of abilities. Accordingly, those inclined toward a growth mindset stand a better chance of improving academic achievement through the types of goals they set and subsequent participation in academic behaviors promoting success (Dweck & Leggett, 1988; Chen & Pajares, 2010).

Table 2

Academic mindsets for those with fixed mindset versus a growth mindset.

	Fixed Mindset	Growth Mindset
Goals	Look smart	Learn
Value of effort, help, and strategies?	Lower	Higher
Response to challenge	Tendency to give up	Work smarter and harder
Changes in grades during adversity	Decrease or remain low	Increase

Note: Adapted from *Mindsets That Promote Resilience: When Students Believe That Personal Characteristics Can Be Developed,* p. 303, by D. S. Yeager and C. S. Dweck, 2012, *Educational Psychologist*.

Testing the theory that motivational factors mediate the relationship between theories of intelligence and academic achievement, Blackwell et al. (2007) followed 373 seventh-grade students in four successive entering classes at a public school in New York City. Throughout the five-year study, mathematics achievement data were collected at the end of the fall and spring terms for all seventh- and eighth-grade participants. Additionally, at the beginning of each academic year, participants completed a motivational questionnaire assessing theories of intelligence, goals, and beliefs about effort. In addition to questions related to learning goals, effort beliefs, and helpless response to failure, the scale consisted of six items related to theories of intelligence: three fixed mindset statements (e.g., "You have a certain amount of intelligence, and you really can't do much to change it.") and three growth mindset statements (e.g., "You can always greatly change how intelligent you are."). A growth mindset was positively

associated with four motivational constructs: effort beliefs, learning goals, low helpless attributions, and positive strategies. Using an OLS regression to test mediational pathways related to these motivational constructs showed significant effects, implying that implicit theories of intelligence are associated with motivational patterns.

Building on the relationship between noncognitive factors (i.e., behaviors, skills, attitudes, and strategies that influence academic achievement) and academic performance, Farrington et al. (2012) developed a hypothesized framework of how five specific factors (i.e., academic mindsets, social skills, academic perseverance, learning strategies, and academic behaviors) interact to affect academic achievement. While acknowledging these factors may be mutually reinforcing, the authors argued that academic mindsets stand alone as the only factor directly impacting each of the remaining noncognitive factors associated with academic performance. As it relates specifically to academic motivation, Haimovitz, Wormington, and Corpus (2011) found among 978 third through eighth grade students that those with a fixed mindset lost intrinsic motivation over the course of a single academic year whereas students with a growth mindset maintained or increased intrinsic motivation.

Implications

The POP addressed in this study concerns the high number of high school student-athletes who annually fall short of meeting NCAA academic initial-eligibility requirements, especially in the sport of football. Academic requirements for NCAA participation are based on longitudinal data showing that a student's core-course GPA in combination with his or her SAT or ACT is an effective predictor of first-year college success (Petr & McArdle, 2012). Accordingly, the exploration of causes and factors

associated with this POP was situated in research literature related to achievement gaps and college access.

Understanding achievement gaps among low-income and minority students required an examination of multiple disciplines and perspectives. While causes and factors associated with gaps in academic achievement overlap to some degree, this study explored family background and early childhood education, societal factors, school resources, and individual factors. This literature review identified a number of factors that support an understanding of potential causes to consider within a subsequent intervention:

- Poor academic achievement prior to or early in high school (Roderick et al., 2009).
- Parental involvement in educational activities (Lee & Bowen, 2006)
- Teacher quality, school culture, and curriculum quality (Darling-Hammond, 1999; Ford & Moore, 2013)
- Academic motivation and implicit theories of intelligence (Dweck & Leggett, 1988; Pintrich, 2004; Zimmerman, 2008)

The factors and causes associated with achievement gaps among low-income and minority students are a proxy for understanding specifically why high school student-athletes may struggle to meet NCAA academic initial-eligibility requirements. To better understand the dynamic related to high ineligibility rates among high school football players, data were collected from high school personnel in the form of a needs assessment to better understand stakeholder perceptions of this POP. Because societal factors are outside the scope of this study, the primary objective of the subsequent needs

assessment study was to operationalize factors related to family factors, school factors, and individual factors to better understand perceived reasons high school student-athletes may struggle to meet NCAA academic requirements.

Chapter 2

High School Administrator Perceptions of Causes and Factors Associated with NCAA Academic Ineligibility

Having identified causes and factors associated with academic achievement gaps among low-income and minority students, a needs assessment study was developed to understand contextual factors influencing academic ineligibility among high school football players. The needs assessment was designed to gather "objective data…that brings to light or enhances understanding of the need for services or [a] program" (Soriano, 2013, p. 5). The following research question guided the study: What do high school administrators perceive to be the reasons high school football players struggle to meet NCAA academic initial-eligibility requirements?

Method

Participants. The NCAA Eligibility Center maintains a database including the contact information for a primary and secondary contact for over 30,000 high schools. The pool of potential participants, the primary and secondary contact for each high school in the NCAA Eligibility Center database, was invited to participate via email containing specific instructions for completing the survey. A total of 2,261 high school administrators from across the United States participated in the study, with 1,673 school counselors (74%), 78 athletics directors (3%), 22 coaches (1%), and 488 school administrators (22%) who completed the survey. Among the respondents, 438 (20%) indicated they work at an urban school, 902 (40%) at a suburban school, and 904 (40%) at a rural school. There were 1,783 (79%) respondents from public school settings and 465 (21%) from private school settings.

Measures. An online survey instrument was used to measure participants' perceptions of the underlying causes and factors associated with academic ineligibility among prospective NCAA student-athletes. Participants were asked to indicate their school setting (urban, suburban, or rural), school type (public or private), and position (school counselor, athletics director, coach, or school administrator). Using a 5-point Likert-type scale where 1 indicated strongly agree and 5 indicated strongly disagree, participants were asked to indicate their level of agreement or disagreement with statements regarding the reasons student-athletes at their school may struggle to meet NCAA academic initial-eligibility requirements as shown in Table 3. This included questions related to school factors (e.g., "Quality of teachers at school."), family factors (e.g., "Home life/parental support."), and individual factors, (e.g., "Poor academic performance early in high school.").

Procedure

Data collection. The pool of potential participants, the primary and secondary contact for each high school in the NCAA Eligibility Center database, was invited to participate via email containing specific instructions for completing the survey. Communications software owned by the NCAA showed that 16,558 individuals opened the email, of whom 2,261 participated in the online survey.

Data analysis. Descriptive statistics were used to describe the respondent perceptions of the barriers and obstacles associated with academic performance of high school football players. Data were reviewed for outliers.

Findings

Among the perceived reasons student-athletes may struggle to meet NCAA academic initial-eligibility requirements, three items generated agreement from more than half of all respondents: poor academic performance early in high school, lack of academic motivation, and home life/parental support, as shown in Table 3.

Table 3

Overall responses to perceived struggles meeting NCAA requirements.

Perceived reason	**Strongly Disagree or Disagree n (%)**	**Neither Agree nor Disagree n (%)**	**Strongly Agree or Agree n (%)**
Home life/parental support	497 (.23)	489 (.22)	1,190 (.55)
Poor academic preparation prior to ninth grade	799 (.36)	519 (.24)	884 (.40)
Students' lack of belief in academic ability	696 (.32)	664 (.30)	822 (.38)
Poor academic performance early in H.S.	352 (.16)	294 (.14)	1,538 (.70)
Lack of academic motivation	402 (.18)	342 (.16)	1,443 (.66)
Lack of exposure to NCAA rules	690 (.31)	524 (.24)	977 (.45)
Quality of teachers at school	1,748 (.80)	341 (.16)	92 (.04)
School culture	1,321 (.60)	517 (.24)	342 (.16)
Too many extracurricular time commitments	982 (.45)	636 (.29)	570 (.26)
Insufficient course offerings	1,637 (.75)	365 (.17)	184 (.08)
Lack of staff knowledge of NCAA rules	1,368 (.63)	458 (.21)	358 (.16)

Four survey items generated *disagreement* from more than half of all respondents as shown in Table 3: quality of teachers at school, insufficient course offerings, lack of staff knowledge of NCAA rules, and school culture. It is worth noting that the four survey items generating the highest levels of disagreement were factors associated with school resources. While research studies have shown that family background influences student achievement to a greater degree than school quality (Coleman et al., 1966; Gamoran & Long, 2007), it is surprising to find such strong disagreement that school factors impact high school student-athletes' ability to meet NCAA academic initial-eligibility requirements.

Among the three survey items with the highest levels of agreement (poor academic performance early in high school, lack of academic motivation, and home life/parental support), I analyzed sub-group responses to determine whether responses among the sub-groups varied. As it relates to home life/parental support, respondents from private schools were the only subgroup in which responses did not align with overall results. Just 129 (29%) of private school respondents agreed that home life/parental support was a barrier.

As shown in Table 4, a majority of participants within each subgroup agreed that poor academic performance early in high school was a barrier.

Table 4

Subgroup responses related to poor academic performance early in high school.

Subgroup	**Strongly Disagree or Disagree n (%)**	**Neither Agree nor Disagree n (%)**	**Strongly Agree or Agree n (%)**
School setting			

Urban	55	49	323
	(.13)	(.11)	(.76)
Suburban	166	106	580
	(.20)	(.12)	(.68)
Rural	120	137	608
	(.14)	(.16)	(.70)
School type			
Public	194	239	1277
	(.11)	(.14)	(.75)
Private	149	54	237
	(.34)	(.12)	(.54)
Position			
School counselor	225	188	1197
	(.14)	(.12)	(.74)
Athletics director	14	6	55
	(.19)	(.08)	(.73)
Coach	2	3	16
	(.10)	(.14)	(.76)
School administrator	106	95	253
	(.23)	(.21)	(.56)

Regardless of school setting, school type, or position, a majority of participants within each subgroup also agreed that a lack of academic motivation, as shown in Table 5, was a barrier to meeting NCAA requirements.

Table 5

Subgroup responses related to lack of academic motivation.

Subgroup	**Strongly Disagree or disagree (%)**	**Neither Agree nor Disagree (%)**	**Strongly Agree or Agree (%)**
School setting			
Urban	70	74	281
	(.17)	(.17)	(.66)
Suburban	198	122	531
	(.24)	(.14)	(.62)
Rural	125	143	603
	(.15)	(.16)	(.69)
School type			
Public	239	270	1205
	(.14)	(.16)	(.70)
Private	156	72	211
	(.36)	(.16)	(.48)

Position			
School counselor	259 (.16)	239 (.15)	1115 (.69)
Athletics director	13 (.17)	10 (.13)	52 (.70)
Coach	3 (.14)	3 (.14)	15 (.72)
School administrator	125 (.28)	88 (.19)	241 (.53)

Discussion

Participants indicated that (a) poor academic performance early in high school, (b) lack of academic motivation/goal setting, and (c) home life/parental support, were the three survey items most related to academic ineligibility. These findings were important because they served as the starting point for developing an intervention designed to address this POP. It is not the role of the NCAA to address this POP through societal, family, or school-level reforms. However, it is well within the organization's scope and mission to consider how it might address academic achievement by targeting individual student factors.

This raised the fundamentally important question of which individual-level factor (i.e., awareness of NCAA rules, poor academic preparation early in high school, or lack of academic motivation/goal setting) should serve as the foundation for an intervention for this POP. Over the last five years, the NCAA has invested considerable time and money in efforts and initiatives designed to promote awareness of NCAA academic requirements. Ineligibility rates, however, have generally remained the same since standards increased in 2008. It would have been unwise, therefore, to design an intervention focused primarily on continued NCAA rules education. Poor academic performance early in high school was noted as another key barrier. However, an

intervention cannot be based on early promotion of academic performance without addressing the causes and factors affecting academic achievement. This left academic motivation as the primary individual-level factor upon which to build an intervention.

As noted in the previous chapter, cognitive processes influence and are influenced by behavior and by external influences (Bandura, 1986). Social cognitive theory provides an important perspective through which to examine individual factors associated with academic achievement. Fredricks et al. (2004) argued that academic achievement is impacted by academic engagement, which is associated with three related theoretical constructs: (a) behavioral engagement, (b) emotional engagement, and (c) cognitive engagement. Among the three constructs affecting academic engagement, cognitive engagement holds the strongest relationship to course grades (Greene & Miller, 1996), the primary building block of the NCAA initial-eligibility process.

Cognitive processing is influenced considerably by self-regulatory strategies. SRL is an important part of cognitive processing (Bandura, 1986), which includes forethought, performance, and self-reflection (Zimmerman, 1989; 2000; Zimmerman & Campillo, 2003.) The forethought phase of self-regulatory processes is predicated on a student's self-motivation and goal orientation. Dweck and Leggett (1988) showed that implicit theories of intelligence influence goal orientation and thus motivational processes. Individuals who believe their intelligence is malleable, increasable, and controllable, have an incremental theory of intelligence (growth mindset) and are more likely to adopt mastery-oriented goals. Individuals who hold an entity theory of intelligence (fixed mindset) believe their intelligence is rigid and not malleable and therefore set performance-oriented goals.

In summary, perception of one's intelligence (i.e., academic mindset) influences the types of goals students set and subsequent motivational processes. Self-motivation and goal setting are important parts of the first phase of SRL, which supports cognitive engagement and subsequent academic achievement. Based on this logic, the following chapter explores the efficacy of intervention research literature related to academic mindsets.

Chapter 3

Implicit Theories of Intelligence Interventions

Findings from the needs assessment study, which examined high school administrators' perceptions of the reasons prospective NCAA student-athletes may struggle to meet NCAA academic requirements, showed that they believed it was most often due to: (a) poor academic performance early in high school, (b) lack of academic motivation, and (c) home life/parental support. Addressing the problem of high academic ineligibility rates among African American football players through societal, family, or school-level reforms is not the role of the NCAA. It is within the mission and scope of the NCAA, however, to consider how it might address academic achievement by targeting individual factors such as poor academic performance early in high school and the lack of academic motivation noted in the needs assessment. As stated in the literature review related to causes and factors associated with achievement gaps, academic achievement is affected by academic engagement, which is influenced by, among other factors, cognitive engagement. Cognitive engagement is impacted by self-regulatory processes, which are based on self-motivation and goal setting. An individual's implicit theory of intelligence (academic mindset) affects the types of goals he or she sets and the motivational processes by which those goals are pursued. These aspects of social cognitive theory, complemented by the empirical findings from the needs assessment study, offered a compelling argument for an intervention targeting theories of intelligence at the individual level. Using this rationale, the present intervention literature review examined activities, measures, and outcomes of intervention studies targeting academic mindsets.

Growth Mindset Interventions

Growth mindset interventions are designed to convey the message that intelligence is malleable and that struggle is an opportunity for growth. Generally, growth mindset interventions have shown small to medium effect sizes (Burnette, O'Boyle, VanEpps, Pollack, & Finkel, 2013). Several small, relatively brief social-psychological interventions targeting students' thoughts, feelings, and beliefs about school have shown positive, sustained effects on academic achievement (Yeager & Walton, 2011; Farrington et al., 2012). Dweck et al. (2011) argued that such interventions "can transform students' experience and achievement in school, improving core academic outcomes such as GPA and test scores months and even years later" (p. 3). Treatment designs found in academic mindset interventions vary considerably in terms of activities and materials. Walton (2014) examined "wise" psychological interventions – interventions informed by a deep understanding of the target population's social world – and argued that successful interventions are based on precise and well-founded psychological theory. Such precision allows for briefer, more narrowly defined interventions yielding surprisingly long-lasting results. Yeager and Walton (2011) argued that beyond well-grounded psychological theory, social-psychological interventions must account for the treatment population's context. Given that interventions targeting noncognitive variables are not intended to replace education reforms, they must be designed in ways that complement and support the educational systems in which they are situated. In other words, they should be integrated into the normal course of business for students and the school.

As an example of such integration, Aronson, Fried, and Good (2002) implemented an intervention in which undergraduate students believed they were

volunteering as mentors for at-risk youth when in fact they were the subjects of research intended to reduce the effects of stereotype threat through the manipulation of their implicit theories of intelligence. Stereotype threat was defined as circumstances in which individuals may show poor academic achievement based on the burden of conforming to cultural stereotypes influencing academic abilities. Participants in this study included 79 Stanford undergraduates (42 Black, 37 White) who were randomly assigned to one of three conditions. Participants were "trained" in three one-hour laboratory sessions to become long-distance mentors for younger, academically at-risk students via pen pal. In the treatment condition (i.e., the malleable pen pal condition), participants took part in several training activities designed to convey the message that intelligence is malleable. Specifically, participants in the treatment condition were asked to convey the following in their letters:

> Because intelligence is malleable, humans are capable of learning and mastering new things at any time in their lives. This message is especially important to get across to young, struggling students. If these students view intelligence as a fixed quantity, they may feel that they are incapable of learning if they encounter difficulty with their school work. If, however, students can be convinced that intelligence expands with hard work, they may be more likely to remain in school and put effort into learning. (p. 117)

Participants assigned to the first control group (i.e., the control pen pal condition) took part in training activities related to theories of multiple intelligences (Gardner, 1983). Participants in the second control condition (i.e., non-pen pal condition) did not take part in the intervention. At the end of the intervention, participants' completed a

survey related to implicit theories of intelligence. The results of a two (race: African American or Caucasian) by three (condition: malleable pen pal, pen pal control, or non pen pal control) analysis of covariance (ANCOVA), revealed a significant effect of the treatment condition. An ANCOVA analysis revealed significant longer-term effects for the treatment condition on the belief that intelligence is malleable. African American students in the treatment condition reported greater enjoyment of the academic process in college, increased academic engagement, and earned higher undergraduate GPAs than their counterparts in the two control groups (Aronson et al., 2002). Though this study did not attempt to link academic mindsets directly with academic motivation, the findings in this study revealed increased academic engagement, a construct associated with SRL and academic motivation.

Building on the previous study examining the relationship between academic mindsets, stereotype threat, and academic achievement, Good, Aronson, and Inzlicht (2003) developed a similar mentor/mentee intervention with 138 seventh-grade students from a rural school district in Texas during one academic year. In this study, the seventh-grade mentees were the targets of the intervention. Demographically, Hispanic and African American students comprised 80% of the population, 45% were female, and 70% qualified for free or reduced lunch. Students were randomly assigned to one of four experimental conditions: incremental condition, attribution condition, combined condition, and an antidrug (control) condition.

Participants were randomly paired with college mentors from the University of Texas, all of whom were trained to convey each of the four experimental messages. In the incremental condition, mentors taught participants that intelligence is malleable. In

the attribution condition, mentors taught participants that many students tend to struggle initially transitioning to the seventh grade but often see improvement. In the combination condition, mentors taught participants about the malleability of intelligence and about the temporarily difficult transition to seventh grade. Participants in the antidrug condition (the control condition), learned about the dangers of drug use.

To deliver these experimental messages, mentors met with the seventh-grade participants in person for 90 minutes in mid-November and again in January, with email communication throughout the academic year. During these meetings mentors helped the seventh-grade participants develop websites promoting the experimental message in their own words, ostensibly for the benefit of other students who were struggling in school. This follows the method used by Aronson et al. (2002), in which attitude change was fostered by asking participants to advocate on behalf of a particular position.

Participants in the incremental condition learned about the anatomy of the brain and how neural connections are made stronger with effort. Phrases such as, "The mind is a muscle; the more you use it, the stronger it grows" (Good et al., 2003, p. 654) were used to convey the message that intelligence is malleable. Students at risk of stereotype threat (African American, Hispanic, and female students) saw increased standardized test scores relative to the control group in the incremental condition, attribution condition, and combined condition (Good et al., 2003). Although the present study does not directly address issues related to stereotype threat, these studies taken together show that interventions targeting implicit theories of intelligence among minority populations have been effective in boosting academic achievement.

Extending this research to the classroom context, Blackwell et al. (2007) conducted a two-part study to explore the connection between academic mindsets and mathematics achievement among adolescents. In doing so, the authors tested the longer-term trajectory of academic performance as well as the mediating factors between theories of intelligence and academic outcomes. The first part of the study, which tested how motivational processes mediate the impact of theories of intelligence on academic performance, was discussed previously. The second part of the Blackwell et al. (2007) study used the same measures from the first part of the study to determine whether a growth mindset intervention would yield increased academic motivation and subsequent academic achievement among middle school mathematics students.

Participants were 91 seventh-grade students from a New York City public school. Pre-existing advisory groups were randomly assigned to the experimental condition (growth mindset) or the control condition. Students were told they would be participating in an eight-week workshop focused on study skills and how the brain works. For eight weeks, students in both groups were led by undergraduate research assistants trained to deliver the appropriate messages according to assigned conditions. For 25 minutes each week, participants learned about the basic structure and function of the brain, study skills, and anti-stereotypic thinking. Within the eight-week study, activities in sessions 1, 2, 5, and 6 were the same for both conditions. In sessions 3, 4, 7, and 8, however, students in the growth mindset condition were taught that intelligence is malleable through the use of vivid images, stories, and analogies (e.g., the brain is like a muscle that gets stronger when it is used). For example, in sessions 3 and 4, students in the treatment condition took turns reading aloud an age-appropriate article that described how the brain creates

newer and stronger neural connects as a result of learning. Students then engaged in a discussion in which they were asked to describe things they had learned to do well and how their brains changed as a result of practice. In sessions 7 and 8, students in the treatment group were asked to discuss times when they had struggled learning something new but experienced success through trial and error. The discussion ended with the message that everything you learn makes you smarter, which means being smart is a choice that you make. The mediational analysis conducted in the first study was used again in the second, showing that general motivational beliefs mediated the relation between theories of intelligence and mathematics grades. Data showed declining mathematics grades among students in the control group, whereas a significant effect was observed among students in the treatment group whose downward trajectories were reversed (Blackwell et al., 2007).

Building on the work of Blackwell et al. (2007) connecting implicit theories of intelligence and motivational processes, Sevincer, Kluge, and Oettingen (2014) conducted a two-part study examining the connection between implicit beliefs in ability and motivational focus by studying how goal pursuit is affected by people's perceptions about present reality versus the future. Sevincer et al. (2014) evaluated four forms of thinking identified by Oettingen (2000) related to how people approach an important wish: indulgence, mental contrast, dwelling, and reverse contrast. With *indulgence*, people think only about a desired future; *mental contrast* begins with thoughts of the future and is followed by reflections on the present reality that constitutes a barrier to the wish. *Dwelling* is thinking only about present reality; *reverse contrast* focuses first on present reality and is followed by thoughts of the future. Of the four modes of thinking

about an important wish, Sevincer et al. (2014) identified mental contrast as the most appropriate way to examine self-regulation and goal pursuit. The authors believed that when given the choice to elaborate on a desired future versus present reality, those with an incremental theory of intelligence would engage in greater levels of future-focused, self-regulatory motivational focus than those with an entity theory of ability.

The study was conducted in two phases. In the first phase of the study, 100 students from a German university were randomly assigned to one of two conditions (i.e., entity vs. incremental). Participants in the entity condition were asked to read passages supporting the notion that intelligence is fixed, while participants in the incremental condition read passages supporting the notion that intelligence is malleable. To check the manipulation of the assigned condition, students' comprehension was tested using a three-item questionnaire initially developed by Dweck (1999; as cited in Sevincer et al., 2014). Participants responded to questions related to their perceptions of intelligence on a six-point scale from 1 (strongly agree) to 6 (strongly disagree). Ninety-two participants answered the questions correctly according to their assigned condition. The eight participants whose scores were not aligned to their assigned condition were removed from the remaining portion of the study.

In the second phase of the study, participants were asked to identify their most important academic goal, followed by the perceived likelihood of attainment and importance of the goal. Participants then identified four future outcomes associated with realization of their goal and four present obstacles associated with not reaching their goal. Finally, participants were asked to elaborate on the first four aspects that came to mind among the eight to determine if motivational focus was considered future-focused or

present-focused. Seventy-six percent of the incremental theorists elaborated on future-focused, self-regulatory aspects whereas just 44% of the entity theorists elaborated on the same (Sevincer et al., 2014). These findings support earlier statements about the relationship between implicit theories of intelligence, goal-orientation, and SRL.

With a growing body of intervention research related to implicit theories of intelligence, Paunesku et al. (2015) examined the efficacy of a scaled approach to a psychological intervention. Noting that previous academic mindset research was relegated to in-person, single-site studies, the authors tested a multi-site intervention by implementing an online mindset intervention with 1,594 students across 13 high schools. Participants took part in two 45-minute sessions spaced roughly two weeks apart. As students logged in, they were randomly assigned to a control condition or one of three treatment conditions: a growth mindset intervention, a sense-of-purpose intervention, or a combined intervention. The growth mindset intervention drew directly from the work of Aronson et al. (2002) and Blackwell et al. (2007) in terms of content and procedures. Students read an article focused on the neuroscience of learning and the way struggle and setbacks provide opportunities to learn and grow. This activity was followed by two writing exercises, one that asked students to put their understanding of the article in their own words and another that asked students to write a letter of encouragement to a fictitious struggling student. The sense-of-purpose intervention helped students understand how homework could help foster broader life goals.

Participants completed a pre- and post-intervention survey using two growth mindset items from Blackwell et al. (2007). Measures of academic performance included students' letter grades in core classes. A linear regression showed the growth mindset

treatment led to a malleable view of intelligence. Of the 367 students identified as academically at-risk, students in the growth mindset treatment earned satisfactory grades in 87 more courses than what might have been expected when compared to the control group, a 6.4% difference (Paunesku et al., 2015).

Conclusion

Contextual considerations notwithstanding, successful academic mindset interventions include two noteworthy commonalities: they are subtle and recursive. Brief social-psychological interventions are successful because they are subtle, or "stealthy" (Yeager & Walton, 2011). The act of outwardly and explicitly targeting a specific population for the purpose of an education intervention not only risks the possibility students will display a negative reaction but may create additional obstacles to academic achievement in the form of stereotype threat (Steele & Aronson, 1995). A subtler approach, on the other hand, affords students the opportunity to attribute academic success to themselves rather than an externally created intervention. Self-attribution facilitates the second element, which is the recursive nature of social-psychological interventions (Yeager & Walton, 2011). Kenthirarajah and Walton (2013) described interventions targeting a specific element of the social cognitive theory as holding the capacity to change not just a moment in time but a process that grows over time. Students who experience academic success as a result of believing their intelligence grows with effort are more likely to invest time, energy, and effort in the next academic task. Similar to a self-fulfilling prophecy, students who believe they can be academically successful are more likely to persevere when faced with obstacles, develop effective

learning strategies, and engage in academic behaviors promoting success (Farrington et al., 2012).

The success of these academic mindset interventions can be attributed to the effective transmission of the theoretically precise message that intelligence is malleable (Yeager & Walton, 2011). Each of the previously mentioned studies demonstrates that when students believe and understand that their brain is like a muscle that grows with effort, academic motivation and subsequent achievement follow. In the present study, the context of athletics participation, which requires regular practices, drills, and strength and conditioning exercises, served as an important bridge promoting academic growth mindsets among high school football players. Similar to the way athletes are motivated by the goals they set (Spray, John Wang, Biddle, & Chatzisarantis, 2006), individuals with an academic growth mindset perceive challenges and obstacles as opportunities for growth and development.

Despite the lack of a universally accepted intervention model, a number of small, relatively brief social-psychological interventions targeting students' thoughts, feelings, and beliefs about school have shown positive, sustained effects on academic achievement (Yeager & Walton, 2011; Farrington et al., 2012). These interventions are psychologically precise (Walton, 2014), contextually developed, subtle, and recursive (Yeager & Walton, 2011). When students come to understand that their brain is like a muscle that gets stronger with use (i.e., that intelligence is malleable), it has been shown that academic motivation and academic achievement are more likely to follow (Blackwell et al., 2007; Haimovitz et al., 2011; Sevincer et al., 2014). With these findings in mind,

an intervention targeting academic mindsets among high school football players was developed.

Chapter 4:

Implementation and Measurement of a Growth Mindset Intervention

The POP addressed in this study was the high overall number and proportion of high school football players who fall short of meeting NCAA academic initial-eligibility requirements annually. According to NCAA proprietary data, African American high school football players comprise the largest demographic subset of academically ineligible high school student-athletes. A review of research literature related to achievement gaps among low-income and minority students revealed complex causes and factors affecting academic achievement, including family background and early childhood education, societal factors, school resources, and individual factors. To better understand contextual factors influencing academic ineligibility among high school football players, data were collected through a survey of high school administrators. The administrators indicated a belief that (a) poor academic performance early in high school, (b) lack of academic motivation/goal setting, and (c) home life/parental support were the primary reasons high school student-athletes failed to meet NCAA standards.

As stated previously, it is not the role of the NCAA to address this POP through cultural, family, or school-level reforms. It is within the organization's mission and scope, however, to address academic achievement by targeting individual student factors through its educational endeavors. Because poor academic performance early in high school was believed to be the primary factor related to academic ineligibility, it is reasonable to assume early promotion of NCAA standards would be a sufficient intervention. Such an intervention, however, would not directly address the causes and factors associated with poor academic performance identified in the literature. Further,

since 2010, the NCAA has executed an increasingly comprehensive education and outreach plan related to academic requirements for NCAA participation using flyers, posters, emails, commercials, YouTube videos, and (in some cases) in-person presentations. These communication efforts have been primarily fact-based, designed simply to promote awareness of academic requirements. Yet increased investment in these activities has not yielded increased proportions of high school student-athletes meeting NCAA academic eligibility requirements.

Because a student's perception of his or her intelligence (i.e., academic mindset) influences the types of goals he or she sets and subsequent motivational processes (Dweck & Leggett, 1988; Chen & Pajares, 2010), it was determined that targeting academic motivation through a growth mindset intervention was the appropriate primary individual-level factor upon which to build an intervention. This study was driven primarily by the following evaluation question: To what extent did participants' academic mindset and academic motivation differ following the treatment group's participation in a growth mindset intervention targeting high school football players compared to a business-as-usual comparison group? Secondarily, this study examined the extent to which participants' knowledge of NCAA academic eligibility requirements changed as a result of participating in the intervention.

Theory of Treatment

A number of studies have shown that interventions targeting a student's belief in intelligence (i.e., academic mindset) can influence academic motivation and academic achievement (Blackwell et al., 2007; Dweck & Leggett, 1988; Dweck et al., 2011; Farrington et al., 2012; Walton, 2014; Yeager & Walton, 2011). Academic mindset

interventions are psychologically precise (Walton, 2014) as well as contextually developed, subtle, and recursive (Yeager & Walton, 2011). Accordingly, the theory of treatment is predicated on the effective transmission of the theoretically-precise message that intelligence is malleable (Yeager & Walton, 2011). I hypothesized that participation in a growth mindset intervention in which the malleability of intelligence was analogized to physical strength and conditioning (e.g., the brain is similar to a muscle that gets stronger with use) would lead to an increase in participants' academic mindset and academic motivation. Perception of one's intelligence affects the types of goals students set and ensuing motivational processes. Self-motivation and goal setting are important parts of the first phase of SRL, which supports cognitive engagement and subsequent academic achievement. Thus, the present study sought to investigate the impact of a growth mindset intervention that aligned with research as described in the following sections.

Method

Recruitment and Participants.

In an attempt to mitigate non-random differences and create a reasonable approximation of a counterfactual environment, two participating schools were recruited based on their similarity in terms of school size, racial diversity, and socio-economic status. In the 2014-15 academic year, "School A" served 3,066 students, 63% of whom were racial minorities and 70% of whom received free or reduced price meals. During the same academic year, "School B" served 3,602 students, 70% of whom were racial minorities and 68% of whom received free or reduced price meals (Indiana Department of Education, 2015). The recruitment process was the same for the treatment school and

the comparison school. At both schools, a recruitment script was read and consent forms were given to each prospective participant. In early October I spoke to all varsity and junior varsity football players at each school. Sufficient detection of a medium effect size between two independent sample means, for power of .80 and $\alpha = .05$, required $N = 64$ in each group (Cohen, 1992).

I consulted with the head coach at each school, and asked prospective participants to return their signed consent forms to one of their coaches within two days. A total of 102 students completed a consent form and participated in the study. At School A, 154 players were recruited, and 56 submitted a completed consent form. At School B, 113 players were recruited, and 46 submitted a completed consent form. Every football player at each school took part in the study; only data from those who completed the consent form were used in the study. As noted in Table 6, there were no differences between the groups in terms of race, χ^2 (4, $N = 100$) = 6.61, $p = .16$, or grade in school, χ^2 (3, $N = 101$) = 1.45, $p = .69$.

Table 6

Demographic comparison of participants by school.

	School A Number (%)	School B Number (%)
Total participants	56	46
Ethnicity		
Asian	0 (.00)	1 (.02)
Black	36 (.64)	37 (.80)
Hispanic	2 (.04)	0 (.00)
Multiracial	3 (.05)	0 (.00)
White	13 (.23)	8 (.18)

Other/Did not respond	2 (.04)	0 (.00)
Grade		
Ninth	1 (.02)	2 (.04)
Tenth	14 (.25)	14 (.30)
Eleventh	18 (.32)	11 (.24)
Twelfth	22 (.39)	19 (.42)
Did not respond	1 (.02)	0 (.00)

In addition, five students from the treatment group participated in a focus group. Among the treatment group participants, these five individuals showed the largest increases in academic mindset between the pre- and post-intervention surveys. Pseudonyms were used throughout the discussion to protect participants' identities.

Instruments.

Participants in both conditions completed a pre- and post-intervention survey (Appendices A and B). Demographic data collected in the survey included (a) grade in school and (b) self-reported race/ethnicity. Dependent variables included self-reported measures of participants' (a) academic mindset, (b) academic motivation, and (c) knowledge of NCAA rules related to academic initial-eligibility. With the exception of questions related to knowledge of NCAA rules, all dependent variables were measured on a 6-point Likert-type scale with item responses ranging from "Strongly Agree" (1) to "Strongly Disagree" (6). Knowledge of NCAA rules related to academic initial-eligibility was measured using three questions adapted from prior market research conducted by the NCAA (e.g., "How many NCAA core courses are required to be eligible for competing in the NCAA?").

Academic mindset was measured using three fixed mindset statements (e.g., "You have a certain amount of intelligence, and you really can't do much to change it."). The internal reliability of this measure conducted by Blackwell et al. (2007) was .78 (n = 373, M = 4.45, and SD = .97); the test-retest reliability for the measure over a two-week period was .77 [n = 52] (Blackwell et al., 2007, p. 249). Academic motivation was measured using two separate but related motivational variables: (a) goal orientation and (b) beliefs about effort. For goal orientation, three questions from the Patterns of Adaptive Learning Survey, Task Goal Orientation subscale (Midgley et al., 1998) were used (e.g., "An important reason why I do my school work is because I like to learn new things."). The internal reliability of this measure was .73 (M = 4.41, SD = 1.09), which carried a modest test–retest reliability over the course of two weeks of .63 (n = 52) (Blackwell et al., 2007). To measure effort beliefs and the extent to which participants believe effort produces positive outcomes, eight items were used (e.g., "The harder you work at something, the better you will be at it.") (Blackwell, 2002). The internal reliability of this measure was .79 (M = 4.66, SD = .89), with an adequate test-retest reliability over a two-week period of .82 (n = 52) (Blackwell et al., 2007).

Survey items included both positive statements (e.g., "The harder you work at something, the better you will be at it.") and negative statements (e.g., "You have a certain amount of intelligence, and you really can't do much to change it.") to measure each construct. Item responses were coded such that a score of 6 indicated the highest level of agreement and a score of the 1 indicated the lowest level of agreement. Survey items stated in the negative were reverse coded so that strong disagreement with a negative statement scored positively.

A focus group interview with five participants from the treatment group was used to collect qualitative data using the questions outlined in Appendix C.

Procedure.

The act of outwardly and explicitly targeting a specific population for the purpose of an education intervention not only risks the possibility students will display a negative reaction, but poses additional potential obstacles to academic achievement in the form of stereotype threat (Steele & Aronson, 1995). For this reason, this study was conducted under the auspices of an NCAA campaign to better understand how to communicate with high school student-athletes. This study employed a quasi-experimental, nonequivalent comparison group design where pre- and post- intervention data were collected from a treatment group and a comparison group (Shadish et al., 2002). The use of a comparison group helped establish a counterfactual model, which provided an approximation for what might have happened to participants in the treatment group in the absence of the intervention program elements. The name of each school was placed in a bag and one was drawn to serve as the treatment group. School A was selected as the treatment group; School B was assigned as the comparison group. Administrators at each school understood that this study was quasi-experimental, focused on ways the NCAA can more effectively communicate with high school student-athletes to increase the percentage of eligible students. School administrators and participants were not informed of the assigned condition, which helped mitigate the extent to which participants may have reacted to the knowledge of a specific condition or treatment (Shadish et al., 2002).

The intervention comprised two components: (a) all participants received an informational flyer and poster; and (b) all participants heard a guest speaker give a talk

about the NCAA including information related to NCAA academic requirements. In the treatment condition, however, each of the components was infused with the message that intelligence is malleable. Both groups received the same two-page NCAA informational flyer, which provided an overview of NCAA rules (Appendix D). Participants in the comparison group received a poster used regularly by the NCAA (Appendix E). Students in the treatment group received a variation of the same poster promoting a growth mindset (Appendix F). A guest speaker delivered a message scripted according to the assigned condition. The script for the comparison group included an overview of basic NCAA rules and the importance of earning good grades (Appendix G). The script for the treatment group (Appendix H) also included an overview of basic NCAA rules but also included statements supporting a growth mindset and students were engaged in an activity promoting personal identification with the growth mindset position (Aronson et al., 2002). Both presentations were audio recorded.

Description of the Process. Because the operational structures of interventions noted in the previous chapter were driven significantly by context, the intervention for this POP was designed with recognition that "football" was the primary context. An additional contextual element considered in the design of the intervention was the school settings and participant demographics. As described in detail below, each of these elements drove the selection of the guest speaker, the illustrations used during his speech, and the design of the posters given to the participants. All activities were implemented as part of regularly-scheduled football practices and aligned with pre-existing education and outreach initiatives conducted by the NCAA. Approximately three months prior to the intervention, the scripts for each condition were developed in collaboration with Bob

(pseudonym), the guest speaker. Bob was selected as the guest speaker for this project for two reasons. First, he is one of the individuals at the NCAA national office who speaks regularly with high school student-athletes, and, in particular, high school football players. Bob's familiarity and experience with public speaking facilitated the implementation of the intervention. Second, Bob, an African American man, is a former college football player who has used his law degree working for several high-profile universities as well as the NCAA. These characteristics made Bob an ideal model for the participants, the majority of whom were African American. As noted by Schunk, "Observing [models] succeed can convey to observers that they too are capable and can motivate them to attempt the task" (1991, p. 216). Additionally, Bob's connections in the world of college football gave him instant credibility, and thus relevance (Pornpitakpan, 2004), with the participants. Because of his public speaking experience, Bob had a familiar outline for speaking to groups of high school football players. This outline was used as the foundation for the scripts that were developed in this study. As will be discussed in greater depth later in this chapter, the co-development of the scripts helped ensure the intervention was practical and replicable.

Bob's "normal" speech was the basis of the script used for the comparison group (Appendix G). We then incorporated specific growth mindset statements, illustrations, and activities within the treatment group script (Appendix H). Keeping in mind the school setting and participant demographics of the treatment group, a personal story from Bob's life was chosen to illustrate the potential of having a growth mindset. The story chronicled the life of Bob's friend, a young man from Harlem who overcame difficult personal circumstances and attended college only to learn he could barely read. Instead

of giving up, he taught himself to read, finished college, attended law school, and is now a college professor. The guest speaker was informed that each speech would be audio recorded, transcribed, and measured for the extent to which each of the key messages within the script was conveyed. I maintained communication with the guest speaker until the scheduled activity to ensure all questions were answered and provide proper support.

The intervention activity coincided with a week-long, mid-October fall break at each of the schools. The treatment school held its football practices during the mornings that week, while the comparison group held its practices during the normal late afternoon time. This allowed the intervention activities for both schools to occur on the same day. The intervention activity for the treatment group took place after its morning football practice. All players, regardless of whether they were formal participants in the study, sat in the middle of the football field for Bob's speech. To stimulate attention and support long-term retention (Sousa, 2001), NCAA informational flyers (Appendix D) were handed out while Bob delivered his speech. Players were quiet and attentive during the speech. When Bob finished speaking, he fielded questions for approximately 15 minutes related to the recruitment process as well as the size and speed of current college football players. Posters designed for the treatment group (Appendix F) were handed out to all players as they left the field. An assistant coach took extra posters to give to other student-athletes at the school.

The intervention activity for the comparison group took place in the team's locker room following its afternoon football practice. Again, all players, regardless of whether they were formal participants, were part of the activity. As with the treatment group, NCAA informational flyers (Appendix D) were handed out during Bob's speech. Players

were disruptive, requiring Bob to raise his voice on several occasions to regain control of the room. Similar to the treatment group, following his speech, Bob fielded questions for approximately 10 minutes about the recruitment process as well as the physical attributes of current college football players. Posters designed for the comparison condition (Appendix E) were handed to players as they exited the locker room.

An agreement was made with each coach prior to the start of the study that the post-intervention survey would occur the week following whichever team lost first in the playoffs. The post-intervention surveys were administered three weeks following the intervention activity.

Data Collection.

This study used a mixed methods, explanatory sequential design (Creswell & Plano-Clark, 2007) in which findings based upon quantitative data informed the qualitative data collection phase to explore certain findings in more detail. Students completed paper and pencil pre- and post-intervention surveys. The pre-intervention survey was administered to the treatment group the same day consent forms were due. For the comparison group, the pre-intervention survey was administered just before the intervention activity. Participants' responses were de-identified through the use of a confidential, four-digit participant identification number.

Data Analysis.

Chi-square tests were used to investigate differences between groups according to race and grade in school. Responses to items on the pre- and post- intervention surveys were graphed and analyzed to ensure there were no outliers in the data. Cronbach's alpha was estimated to measure reliability of the scales. Students' survey responses were

analyzed using SPSS with a .05 alpha level for all significance tests. Independent sample *t* tests were used to determine whether the group mean scores differed significantly on pre-intervention and post-intervention survey items. ANCOVA was used to examine the treatment effect after controlling for pre-intervention differences. Chi-square tests were used to examine differences between groups on the number of items correctly answered for knowledge of NCAA eligibility requirements. Qualitative data from the focus group were analyzed using a modified approach to thematic analysis (Braun & Clarke, 2006), where I (a) became familiar with the data, (b) searched for themes, (c) defined and named the themes, and (d) reported findings.

Fidelity of Implementation

Fidelity of implementation is the examination of the causes and their respective relationships with observed effects. Dusenbury, Brannigan, Falco, and Hansen (2003) described this as an evaluative process asking whether, "the implemented program is carried out as intended by the program developers" (p. 240). As noted in Nelson et al. (2012), sophisticated statistical analyses of outcome data from an intervention may support causal claims as they relate to program outcomes or effects. Without measuring components within the proverbial "black box" of an intervention, however, it is difficult to adequately describe or explain precisely how or why a program worked or did not work. Nelson et al. (2012) contended that a systematic process for measuring fidelity of implementation not only bolsters the argument for internal validity but also helps explicate the cause(s) associated with causal inferences. The authors defined intervention fidelity as "the extent to which an intervention's core components have been implemented (and differentiated from comparison conditions) as planned" (p. 377). In

this context, components can be thought of as the activities or events developed by the researcher as part of each condition within the experiment.

The primary research question related to fidelity of implementation was whether the treatment activities were clearly distinguished from the comparison activities, which is fundamentally important to determining appropriate long-term investments in such activities. Since hard copy materials given to participants (e.g., informational flyers and posters) were differentiated through their design according to the assigned condition, they were not included in the examination of implementation fidelity. Thus, the fidelity of execution of the guest speaker's treatment script (Appendix H) was the primary means by which fidelity of implementation was measured.

Data Collection. To investigate implementation fidelity, the guest speaker's speeches were audio recorded and transcribed. Observational data collected during each activity included the date and time of each activity and participant attendance. Field notes were taken during each of the talks and included observations of logistical challenges, interactions with and among participants, and other environmental factors observed by the researcher.

Data Analysis. The guest speaker's scripts (Appendices G and H) included several subsections that outlined the key topics to be included. Within each subsection, certain phrases appeared in bold to highlight key messages that were central to the intended message for the treatment condition. The speaker's execution of the treatment script was examined for inclusion of (a) each subsection of the script and (b) the key messages (bold in the script). To measure the speaker's execution of the script, an evaluation rubric was used to determine the extent to which each of the key messages

was conveyed using a scale of 0 to 4, as shown in Table 7. Interclass correlation was used to measure inter-rater reliability.

Table 7

Rubric for evaluating message conveyance.

Conveyance Level	Criteria for Score	Score
Completely conveyed	Execution of the key message was verbatim or nearly verbatim in relation to the script.	4
Mostly conveyed	The key message was delivered; specific words and/or phrases from the script were mostly used.	3
Partially conveyed	Aspects of the key message were delivered; specific words and/or phrases from the script were only partially incorporated.	2
Minimally conveyed	Aspects of the key message were delivered, but specific words and/or phrases from the script were not incorporated.	1
Not conveyed	The key message was not attempted.	0

Field notes were analyzed using a modified approach to thematic analysis (Braun & Clarke, 2006), where I became familiar with the data by reading the transcript three separate times. Using a color-coding system, I identified and organized data into four distinct themes. Within each theme, I then synthesized common sentiments among the participants and reported the findings.

Strengths and Limitations of the Design

While quasi-experiments where randomization occurs at the group level offers less compelling support for causal inferences, randomization at the individual level was not practical because of the context of the intervention being the football teams.

Additionally, randomization at the individual level can lead to contamination between participants in each condition, for which it would have been difficult to control statistically. While a double pre-test, where participants complete the pre-intervention survey at two different intervals, may have illuminated selection maturation (Shadish et al., 2002), this study was designed to minimize interruption of normally scheduled activities. When considered in conjunction with the risk of test fatigue given the overall duration of the intervention (approximately four weeks), a double pre-test was not a reasonable consideration for this study.

Chapter 5

Findings from the Intervention

In Chapter 4, I outlined (a) the theory of treatment supporting the intervention, (b) the intervention methods, including participants, instruments, data collection, and data analysis, and (c) methods for evaluating the fidelity of implementation. In this chapter, I will report the findings of the study, first by providing quantitative and qualitative data related to fidelity of implementation, followed by quantitative and qualitative data related to the research question underlying this study. This chapter will conclude with a discussion of the findings, including limitations of the study and conclusions.

Academic Mindset and Motivation

This study examined differences in participants' academic mindset and academic motivation following participation in a growth mindset intervention targeting high school football players compared to a comparison group. To test the reliability of measures for my sample, I conducted Cronbach's α tests. Generally, Cronbach's α above .70 is considered modestly reliable, while Cronbach's α above .80 is considered adequate for basic research (Nunnally, 1978). In the present study, the measure associated with academic mindset was adequate for both the pre-intervention (α = .79; N = 101) and post-intervention (α = .84; N = 79) scores. The measure associated with academic motivation approached modest reliability for the pre-intervention scores (α = .66; N = 98) and was adequate for the post-intervention scores (α = .80; N = 78).

Using the data shown in Table 8, I then examined whether the groups differed initially with respect to academic mindset and academic motivation. An independent sample t test showed the groups differed significantly with respect to the pre-intervention

mean academic mindset scores $t(99) = 2.08$, $p = .04$. The comparison group reported a significantly higher mean academic mindset score ($M = 4.57$, $SD = 1.20$) than the treatment group ($M = 4.07$, $SD = 1.17$). The groups did not differ in their pre-intervention mean academic motivation scores, $t(99) = 1.19$, $p = .24$. Because the groups differed initially with respect to the pre-intervention mean academic mindset scores, I tested the extent to which the treatment condition predicted post-intervention academic mindset and post-intervention academic motivation controlling for pre-intervention mean academic mindset scores. Using pre-intervention mean academic mindset as the covariate, an ANCOVA showed that treatment was not a significant predictor of post-intervention mean academic mindset, $F(1, 76) = .09$, $p = .76$, or post-intervention mean academic motivation $F(1, 76) = .13$, $p = .72$.

Table 8

Pre- and post-intervention mean scores for academic mindset and academic motivation.

	Pre-intervention Academic Mindset			Post-intervention Academic Mindset		
	n	Mean	*SD*	*n*	Mean	*SD*
Treatment	55	4.07	1.17	48	4.25	1.38
Comparison	46	4.57	1.20	32	4.53	1.14
	Pre-intervention Academic Motivation			Post-intervention Academic Motivation		
	n	Mean	*SD*	*n*	Mean	*SD*
Treatment	55	4.90	.52	48	4.74	.74
Comparison	46	4.76	.62	32	4.91	.61

Knowledge of NCAA Rules. Although the intervention was not explicitly designed to increase participants' knowledge of NCAA rules, it was conducted under the auspices of a communication study related to the NCAA's education and outreach initiatives. Participants answered three questions in both the pre- and post-intervention surveys related to minimum academic requirements for initial-eligibility. Just 50

participants (56%) of all participants correctly answered the question related to the minimum GPA; 19 participants (24%) correctly answered the question related to the minimum number of required core courses; and only 37 participants (46%) correctly answered the question related to the required core course progression. Perhaps most striking, only four students (4%) correctly answered all three questions related to NCAA academic requirements pre-intervention and only two students (2%) correctly answered all three questions on the post-intervention survey. No participants correctly answered all three questions related to NCAA academic requirements on both the pre- and post-intervention surveys.

As shown in Table 9, there was an association between groups and the percentage of participants who correctly answered the question related to the minimum required GPA prior to the intervention, χ^2 (2, N = 101) = 26.2, $p < .01$, as well as following the intervention, χ^2 (2, N = 80) = 6.33, p = .04. While 36 (78%) participants in the comparison group correctly answered the question related to the minimum required GPA, just 16 (29%) participants in the treatment condition answered correctly. There was also an association between the groups and the percentage of participants correctly answering the question related to the minimum number of core-courses before the intervention, χ^2 (3, N = 100) = 23.1, p = .00, as well as after the intervention, χ^2 (3, N = 80) = 17.6, p = .001. On the pre- and post-intervention surveys, just five (9% and 10% for the pretest and posttest, respectively) participants in the treatment group correctly answered the question related to the minimum number of core-courses. By contrast, 22 (49%) participants from the comparison group answered correctly on the pre-intervention survey and 14 (44%) answered correctly on the post-intervention survey.

Table 9

Number (%) of correct responses to knowledge of NCAA rules.

	Pre-Intervention			Post-Intervention		
	GPA	Core Courses	Progression	GPA	Core Courses	Progression
Treatment	16	5	24	26	5	26
	(.29)	(.09)	(.44)	(.54)	(.10)	(.54)
Comparison	36	22	14	24	14	11
	(.78)	(.49)	(.31)	(.75)	(.44)	(.34)
Total	52	27	38	50	19	37
	(.52)	(.27)	(.38)	(.56)	(.24)	(.46)

Focus Group Interview Data Analysis

This study employed a mixed methods, explanatory sequential design (Creswell & Plano-Clark, 2007) that used quantitative data from the pre- and post-intervention surveys to identify participants for qualitative analysis. Students' survey responses were used to identify five participants from the treatment group who showed the greatest increase in academic mindset scores between the pre- and post-intervention surveys. These individuals (pseudonyms: Cam Newton, Tavon Austin, Peyton Manning, Todd Gurley, and Drew Brees) were recruited and agreed to participate in a focus group interview regarding their experience taking part in the intervention. Tavon and Todd were only able to stay for the first half the interview. During the focus group interview, which took place 14 weeks after the post-intervention survey, four themes emerged: (a) increased awareness of the college admission process, (b) enhanced awareness of NCAA requirements, (c) changes in implicit theories and behavior, and (d) factors influencing these changes. Quotations included below were selected based on the way in which they represent aspects of the discussions related to each of the four themes.

College admission and recruitment process. Lack of familiarity with the college admission process is a factor affecting the college participation gap for low-

income and minority students (Roderick et al., 2009). Though this intervention was not explicitly designed to raise awareness of the college admission process, participants indicated they learned that the process was more complex than they previously perceived. Drew shared:

> I thought it was just, I want to go a certain college to apply. They accept you. All that. But now it's like you gotta [*sic*] have certain scores so your GPA ... Gotta [*sic*] take the SAT, ACT, and you gotta [*sic*] write essays. His most important phrase, and those were only three words, that's why I remember it, was "Get your degree" because that's like the most important thing you can do in college, because not everybody goes to the league, and the league is not a long term option.

Cam expressed a new understanding of the steps and effort required for the college admission process by stating:

> I used to think, getting into college was a simple step. Where I thought it was just a simple step. But now I think, there's more complex steps to it. And basically you have to do way more to get into college, than to go to a good college. And it's hard, but it's worth it. I used to think, learning and grades didn't really matter in life. That's what I used to think. Now I know... Now I think, the more you know the more you can achieve in life.

NCAA requirements. There were additional reflections related to the intersection of academic performance, the athletic recruitment process, and NCAA requirements. Todd noted that, "I learned that a college can have their eye on you but there's always someone better than you, academic-wise and athletic-wise." Similarly,

Cam shared, "…your academics are way more important than your attributes, your physical attributes." Peyton added, "I used to think that if I failed, it couldn't hurt me, like as of right now, and where I'm at."

Tying together the intersection between NCAA academic requirements and the college admission process, Tavon was inspired to reach beyond the NCAA minimum 2.300 GPA:

> One thing I kinda [*sic*] remember was how we talked about the GPA was... How the minimum was like 2.3 but that you shouldn't set yourself to those kind of standards to get that low of a GPA. You wanna [*sic*] go above and beyond that as much as you can and it just kinda [*sic*] like showed how it could be like a lot easier and simpler for you to get into a D1 college if you had a higher GPA.

Changes in implicit theories of intelligence. The primary objective of this study was to examine the extent to which participation in the intervention affected participants' implicit theories of intelligence and subsequent academic motivation. As noted previously, studies have shown that interventions targeting a student's implicit theory of intelligence (academic mindset) can influence academic motivation and academic achievement (Blackwell et al., 2007; Dweck & Leggett, 1988; Dweck et al., 2011; Farrington et al., 2012; Walton, 2014; Yeager & Walton, 2011).

When focus group participants were asked whether they were more inclined to believe their own opinion of their intelligence, or the opinion of someone else, each of the participants agreed with Cam's reflection:

> You could call me the smartest guy in the world, but I'm gonna [*sic*] always study more so I can get smarter. Or you could call me the dumbest person in the world

and I would never... If you call me the dumbest, I would never ever believe you. I would just, even if I was, I would still get the extra help to get it, to be smarter than I am.

Dweck and Legget's (1988) work on cognition-affect-behavior showed that individuals' implicit beliefs about intelligence directly impact the types of academic goals they set and, thus, their motivational processes. It is here that the focus group participants reacted most strongly, sharing personal stories from the fall related to belief in ability, motivation, and self-regulation strategies.

Each of the focus group participants noted improved grades in the fall semester. Peyton shared a story about the effort he invested and subsequent success he experienced in his German III course:

> …and the homework's hard, just thinking about the language is hard, it's so different, and I just, I wanted to stop. And I knew that if I stopped, I wouldn't get what I want…But I kept trying and trying and trying; I did the homework, I did it, and I finally came out with like a B+ and I was very happy because it's an advanced course and college credit.

With knowledge of improved grades, I asked the focus group participants whether the success they experienced in the fall semester motivated them to stay committed to academic achievement. Cam shared a success story from his Spanish III course:

> I just gave up and I didn't wanna [*sic*] do it no more. But…I always wanna [*sic*] do better than that, and it made me think how I promised myself…I wasn't gonna [*sic*] have grades that low no more. I wasn't gonna [*sic*] settle for a C no more. Basically, right when I saw that, it just made me change and I went to class,

> actually listened and got better, and I stayed after and raised it up to a B+…it makes me feel like, 'I did it. I'm good at it'…For hard classes, that makes you feel good.

Given the success these students experienced during the fall semester, I asked the focus group participants if they could specifically identify anything they changed about their study habits, their strategies, or their methods that helped them achieve success. Reflecting on the impact of Bob's speech, Drew shared:

> I changed the way I actually committed to my work … At that point, when I just gave up on it, I wouldn't even study. I would just sit there… But seeing that [Bob's speech], it made me actually go home, study, participate in class time where we could do, where we can study the work in the curriculum.

Referencing the NCAA's minimum GPA requirement, Drew discussed the way a different mindset affected his approach to homework:

> I changed my approach to the homework. I used to just look at it. I would put it on my bed. Lay on my bed and probably take a little hour nap before I did it… And I used to think that to have good grades you had to be a certain type of person, you weren't involved in extra-curricular activities, you were goin' [*sic*] home hittin' [*sic*] the books right away. But for people who stay after school, don't get home until 7:00 I used to think it was impossible to get A's and B's but it's still easy if you have great time management and you're dedicated to what you're doin' [*sic*].

The key phrase at the top of the poster for the treatment group (Appendix F) states, "Your brain is like a muscle that gets stronger with use." Wondering if and how

this statement resonated with the focus group participants, I asked them, “In what ways, if any, do you guys think that physical conditioning, strength, and conditioning is similar to learning?” Cam reflected:

> The more learning you do and the more you pay attention to it, the better you'll get on the grade. The more correctly you do physical conditioning, the better it pays off in the long run. It'll work to your physical attributes and what you could do that's better with your body.

Building off what Cam said, Drew agreed, and added:

> …what he (Cam) says about the participation is that it correlates to anything you do in sports. If you commit yourself to whatever you're doing and you commit yourself to getting better. Doing extra reps when they're not telling you to do it, going out training which is hitting the books, reading more.

To see if focus group participants could draw a connection between strength and conditioning (“Your brain is like a muscle that gets stronger with use.”) and self-regulated learning strategies, I used an illustration of an athlete trying to become faster and asked, “If we were to translate that to academics what does it take to get better? What specifically should someone do if they think that they want to try to improve academically?” Cam had the most to say about this connection:

> For me, I say what's equivalent to extra reps is getting extra help. You can learn a lot from listening, listening to the teacher and participating…You could mess up but could see how you messed up and learn by that, what's the right thing? So when you participate it gives you more knowledge too, because you could see

what you got wrong, so you're good there, but still studying. You could see what you got wrong so you could study more.

Tying together the themes of belief in ability, motivation, and self-regulation strategies, Peyton shared how participation in the intervention changed the way he thinks about the relationship between failure and improvement:

> I used to think that it's all right if I stopped trying, maybe in a class or something… But now I think with failure, you [*sic*] got to keep trying… Now I think that if you really give up, you fail… You can never stop, there's always places to improve.

Echoing those sentiments, Drew made a connection between strength and conditioning, belief in ability, and the success that comes from effort:

> I would say strength and conditioning is similar to learning in the classroom because it helps you build mental toughness and fortitude. It teaches you how far you could go and you always know how far you can go but you never know that you can go past that until you push it and that's with weights and all the running and conditioning that we do. It made me realize, you know... I used to run a five and a half [second] 40 [yard dash] and I always thought, 'Oh you know that's good, that's average.' Now I'm a five [second] almost sub-five [second]. Like in the classroom, oh a C is passing but now I'm getting A's and B's. So, they pay dividends at both ends.

Factors associated with change. Finally, to understand what elements from the intervention may have played a role in these students' changed academic mindsets, I specifically asked focus group participants to comment on what, from the activities in the

fall, influenced the way they think. Each participant indicated that they kept the poster. Peyton, who said the poster is on the wall in his bedroom, indicated the poster served as a motivator:

> Not only does the poster act as a helpful guide, but it also acts as a momentum booster. When I look at it in the morning, it says, "I can do better," and when I look at it and I see the grade point averages and it says 2.3 and you need this SAT score, I wanna [*sic*] do better than that.

The guest speaker, Bob, played a role in opening Drew's eyes to the complexities associated with the college admission process:

> I think the NCAA guy, he served as more of an eye opener for me. I knew the general basis of what it took to get into college, but the way that he put it and explained it to me, it made it seem a lot more complex. And I thought it was simple.

Peyton expressed that Bob's speech provided perspective regarding the long-term consequences of poor academic achievement, stating, "And the guest speaker made me think about me compared to other people. Yeah, that was a big influence on me and he said, 'I better do something different or else it's not gonna [*sic*] work out.'"

For two focus group participants, Bob's speech appears to have fostered or facilitated discussions with other adults in the participants' lives. Drew, noting that his father hung the poster on the wall of their family home office, spoke about the importance of earning a college degree:

> …the guest speaker and my parents, they kept a message goin' [*sic*] in my head that academics is more important than anything else you're doin' [*sic*], and that

you really can't do anything in life until you get that degree. It opens up more job opportunities.

Similarly, Cam shared that Bob's speech, combined with motivation from his father, helped him to reflect on life after high school without football:

> Yeah, the guest speaker, he motivated me, but everything else... Dad motivated me too, but the guest speaker, he did... Basically, he gave it to me as real as he could. It made me think, 'I really couldn't be out there long. Not everybody makes it to college football.' So it made me think about, what else do I like? What else do I really like and will want to do in life? So that made me think about that too. Sports really influenced me to think differently because a lot of my favorite athletes are rich now. They came from worse conditions than most people on the team, worse conditions than me. And I've seen their success stories, how they got good grades, made it to college and made it to league, so they really influenced me to have good grades, anybody could get the good grades.

Fidelity of Implementation

Participant engagement with intervention materials. Participants in both conditions were asked questions related to their engagement with the NCAA informational flyer (Appendix D) and poster (Appendices E and F) in the post-intervention survey. These data provided participants' level of engagement with these components of the intervention. Though participants in the comparison condition registered higher percentages of reading and keeping the informational flyer and poster (Table 10), chi square tests revealed that differences in the groups' interactions with the

materials were not statistically significant. Thus, participants in each group engaged with the NCAA materials to a similar degree.

Table 10

Chi-square table for participant engagement with intervention materials.

	Number (%) indicating "Yes"			
Engagement item	Treatment	Comparison	χ^2	*p*
Read informational flyer	36 (.75)	25 (.78)	.06	.82
Kept informational flyer	30 (.63)	24 (.75)	.89	.35
Read poster	37 (.77)	27 (.84)	.18	.67
Kept poster	33 (.69)	26 (.81)	1.08	.30

Note. *df* = 1.

Guest speaker script execution. A critical question for evaluating fidelity of implementation was whether the guest speaker adhered to the treatment script, which contained nine key messages associated with a growth mindset (Appendix H). Using a transcript of the talk, the rubric outlined in Table 7 was used to measure the extent to which each of the key messages was conveyed, where a score of 0 meant the key message was not conveyed and a score of 4 meant the key message was completely conveyed.

The following quotes from the treatment script were completely conveyed and received a score of 4:

- "They're looking for the guys that are A's on the field AND in the classroom."
- "For a lot of you, football is your plan A, and your education is your plan B. I'm here to tell you that your plan B should be your plan A."

The following quotes from the treatment script were mostly conveyed and received a score of 3:

- "You have to have 16 core courses…10 of them done before your senior year, with 7 of those 10 in English, Math, or Science….and a minimum of a 2.3 GPA."

The following quotes from the treatment script were partially conveyed and received a score of 2:

- "Just like physical conditioning…all of the work you guys put in in the weight room…, students who embrace mental challenges are more likely to do well in school. Your brain rewires itself to be stronger when you persevere through challenges. Many people miss out on the chance to grow a stronger brain because they think it's too hard. But just like lifting weights, the pain brings gain. And when you see yourself grow mentally, you'll see the work was worth it."
- "Because he believed he could get smarter, he got smarter."
- "Don't forget: your brain is like a muscle that gets stronger with use. Believing you can get smarter makes you smarter."

The following quotes from the treatment script were minimally conveyed and received a score of 1:

- (Mindset illustration part 1 of 2) "If you think that you only have a certain amount of intelligence and there really isn't much you can do to change it,

stand on this side of the room. If you think that your intelligence is something that can be changed, I want you on the other side of the room."

- "…believing you can get smarter makes you smarter. A lot of people think of the brain as a mystery, but the truth is that science shows that your brain is like a muscle that gets stronger with use."

The second of two mindset illustrations, an attitude change technique to reinforce the treatment message which should have occurred at the end of the speech asked participants to again physically move to one of two designated areas based on their implicit theory of intelligence. This did not occur and thus received a score of zero. Using the rubric in Table 7, the average overall score for conveyance was 2.11, which is most closely associated with the conveyance level "partially conveyed." A colleague holding a Ph.D. in Language, Reading, and Culture was asked to evaluate the transcript using the conveyance rubric. Based on the scores within each of the sections, there was a high degree of inter-rater reliability with an average interclass correlation of .89, $p = .002$.

Discussion

The purpose of this dissertation was to examine the extent to which participants' academic mindset and academic motivation differed following the treatment group's participation in a growth mindset intervention targeting high school football players compared to a business-as-usual comparison group. Though a number of studies have shown that growth mindset interventions are effective in increasing academic motivation (Blackwell et al., 2007; Haimovitz et al., 2011; Sevincer et al., 2014; Yeager & Walton, 2011; Farrington et al., 2012), quantitative data in the present study did not support the hypothesized effect among participants in the treatment condition. Despite the fact that

the mean academic mindset score increased slightly for participants in the treatment condition, the mean academic motivation score decreased slightly. Conversely, the mean academic mindset score for participants in the comparison group dropped, yet the mean academic motivation score increased.

Perhaps more striking were the data associated with knowledge of NCAA rules. Although increasing knowledge of NCAA rules was not the focal point of the present study, it was presumed that conducting the study under the auspices of an NCAA communication study related to academic requirements would lead to increased awareness of the rules. While NCAA staff members speak about academic initial-eligibility requirements with various groups throughout a given year, never has the NCAA produced an outreach effort like the one conducted in the present study. Even with a credible, in-person guest speaker providing information directly to high school student-athletes verbally and through posters and flyers, just over half (56%) of all participants correctly answered the question related to the minimum GPA; slightly under half (46%) correctly responded to the question related to the core course progression; and not even one-fourth (24%) correctly answered the question related to the total number of core courses needed following the intervention. These findings highlight the critical role of high school coaches, school counselors, and other school personnel in the NCAA initial-eligibility process. Beyond direct communication with high school student-athletes and their families, the NCAA must make certain it partners with, supports, and equips high school personnel in a joint effort to ensure student-athletes are academically prepared for the rigors of a four-year collegiate institution. In sum, these quantitative data not only call into question whether and how the NCAA can effectively increase

academic motivation among high school football players, they also draw attention to the difficulty delivering simple messages related to minimum academic requirements.

Qualitative data from the focus group interview, on the other hand, revealed important insights suggesting a strong connection between the experience of being a student-athlete and the principles associated with having a growth mindset. One of the key tenets of growth mindset research is that individuals with a fixed mindset typically perceive assessments as situations in which they are judged as capable or incapable of a given task whereas individuals with a growth mindset see assessments as opportunities for improving or acquiring certain dispositions or skills (Dweck & Leggett, 1988; Dweck, et al., 1995). As discussed in the focus group interview, student-athletes understand that failure provides opportunities for growth. Coaches regularly express to student-athletes that improvement comes through learning from mistakes and committing to finding new and better strategies for success. These principals are in alignment with having a growth mindset and should be explored further.

Though this intervention was not designed to raise awareness of the college admission process, it is worth noting that participants in the focus group interview discussed the critical role that Bob's presentation played in helping them see the complexities associated with the college admission process. Though not all high school student-athletes will participate in NCAA athletics, it is important for the NCAA to consider how it might leverage its considerable influence to promote knowledge and awareness of the college admission process.

Limitations of the Study. There were several limitations to the present study that may help to clarify its findings. To understand why the quantitative data did not

show the hypothesized effect, I re-examined the timing of survey administrations across interventions synthesized in Chapter 4. As noted previously, the post-intervention survey in the present study was administered three weeks after the completion of the intervention. Similarly, participants in the study conducted by Blackwell et al. (2007) completed the post-intervention survey three weeks following the intervention. This is contrasted by the study by Aronson et al. (2002) in which participants filled out survey questionnaires at two intervals: within one week after the intervention and then again nine weeks later, showing the change was sustained. It is therefore unlikely that the timing of survey administrations influenced the inability to observe the hypothesized effect.

Additionally, the present study lacked sufficient statistical power to observe the hypothesized effect. Generally, growth mindset interventions have shown small to medium effect sizes (Burnette et al., 2013). As stated in the previous chapter, sufficient detection of a medium effect size between two independent sample means, for power of .80 and $\alpha = .05$, required $N = 64$ in each group (Cohen, 1992). Approximately 125 participants were recruited at the treatment school ($n = 56$ participants) and 115 participants were recruited at the comparison school ($n = 46$ participants). The interaction of three practical constraints limited the total number of participants in the study: (a) the need for signed assent from a parent or guardian for students under the age of 18, (b) sensitivity to the time demands of coaches and prospective participants, and (c) challenges scheduling the necessary sequence of events of the intervention around major competitions during the season for each school. To yield a higher number of participants in future studies, perhaps an incentive (e.g., iTunes gift card) is appropriate. That said,

any intervention in which the primary context is football will likely bring challenges associated with time demands and logistics. This challenge related to the context of the study will be discussed in greater detail below.

Even with sufficient statistical power, I observed a ceiling effect in the pre-test measures for academic motivation for both groups. The mean motivation score in the study conducted by Blackwell (2002) was 4.66 on a 6-point scale (n = 52, SD = .89). In the present study, the pre-intervention academic motivation mean score for the comparison group was 4.76 (n = 46, SD = .62), while the pre-intervention mean academic motivation score for treatment group was 4.90 (n = 55, SD = .52). The mean academic motivation scores are most closely associated with the term "Agree" on the 6-point Likert scale, which indicates that participants in both groups reported high levels of academic motivation prior to the intervention. Because the pre-intervention mean scores indicated high levels of agreement in relation to academic motivation, any increase, regardless of size, may not have been meaningful. The high pre-intervention mean scores for academic motivation for both groups call into question whether perceptions of high school administrators, who, as noted in Chapter 2, identified lack of academic motivation as a key barrier to students meeting NCAA academic requirements, were accurate. Or perhaps by virtue of athletics participation and the motivational messages that often come from coaches and teammates, participants may have responded with strong levels of agreement or disagreement to survey items they subconsciously associated with athletic achievement.

Another limitation of the study may have been the treatment design, which tested the limits of brevity and subtlety in a growth mindset intervention. Treatment designs for

academic mindset interventions differ in relation to their activities and materials. Yeager and Walton (2011) wrote that successful interventions are contextually developed, subtle, and recursive. Walton (2014) argued that successful interventions are based on specific and well-founded psychological theory, which allows for briefer, more narrowly defined interventions. As will be discussed below, the design of the intervention treatment was influenced by certain needs within the context of my professional setting, the NCAA national office. While brevity was in many ways necessitated by practical constraints of the study, perhaps elements of the treatment design should have been more explicit in drawing out the neuroscience underlying the malleability of intelligence, similar to the studies conducted by Blackwell et al. (2007) and Paunesku et al. (2015).

Examining the qualitative data related to the fidelity of implementation, however, shows the execution of the treatment script could have been better. A perfectly designed intervention is meaningless if not properly executed. Despite the fact the scripts were co-written, possibly more could have been done to ensure Bob had a deep understanding of the research supporting the theory of treatment. On the other hand, unpredictable factors such as nerves or other types of distractions, all of which can influence a speaker's adherence to a script, can only be mitigated to a certain degree.

Considerations for Future Research. This study was intended to serve as proof-of-concept to determine the effectiveness and long-term feasibility of an intervention within the context of my professional setting. As mentioned previously, the NCAA is engaged in ongoing efforts to ensure that high school student-athletes, parents, high school coaches, and high school administrators know and understand NCAA requirements. The communications strategies currently associated with these efforts

include the use of web resources, printed materials, social media (e.g., Twitter, YouTube, etc.), and in-person presentations at various local, regional, and national events. It was known well before the start of this study that the development of an intervention, regardless of its potential to yield a large effect size, would not be considered a success if it was not practical, replicable, sustainable, and cost-effective within the context of my professional setting.

Findings from the needs assessment survey of high school administrators suggested that lack of academic motivation was an important reason high school student-athletes struggled to meet NCAA academic requirements. The high levels of self-reported pre-intervention incremental academic mindset and academic motivation, however, call that perception into question. Certainly the high levels of self-reported academic incremental mindset and academic motivation could be attributed to response bias in which participants' responses were aligned to perceived positive academic behaviors. If the NCAA chooses to continue exploring how it might better prepare high school student-ahtletes for the academic rigors of university-level coursework, more research is needed to determine whether academic motivation is the appropriate factor to address. To be more certain about the causes and factors associated with ineligibility among high school student-athletes, the NCAA should consider surveying high school student-athletes who failed to meet academic requirements.

As noted above, the present study tested the limits of brevity (Walton, 2014) and subtlety within a specific context (Yeager & Walton, 2011). Based on the data from the present study, it is unclear whether the dosage of intervention components given to the treatment group was appropriate. Perhaps additional layers of treatment (e.g., formally

incorporating the football coaching staff into the treatment design) would have yielded a different outcome. Additionally, the execution of the guest speaker's script in the present study was rated as "partially conveyed," meaning that while aspects of the key messages were delivered, specific words and/or phrases from the script were only partially incorporated. Because an important element of an effective growth mindset intervention is the delivery of psychologically precise messaging (Walton, 2014), future studies would do well to either over-manage the development of intervention components that require live execution or consider the use of video recorded messages.

Related to conveyance is the need to examine the extent to which culturally relevant pedagogy impacts the delivery of growth mindset messaging. This may include an examination of the "linguistic structures of various ethnic communication styles" (p. 111) as well as contextual factors, cultural nuances, and vocabulary usage (Gay, 2002) in growth mindset interventions. It does not matter how psychologically precise a given treatment component is if it is not relevant to the culture in which it is being delivered. For example, instead of saying to students, "Your brain is similar to a muscle…" perhaps a more communal communication style (e.g., "Our brains are like muscles…") may be more appropriate and thus more effective. In addition to conveyance, it is also important to explore the extent to which delivery of key messages should be reinforced, or recursive. Though some studies have observed positive effects using brief interventions (Yeager & Walton, 2011; Paunesku et al., 2015), it is unknown whether such brevity (assuming appropriate conveyance of key messages) is appropriate for the context of high school football.

Additionally, it is important to understand more about the extent to which the intervention materials (poster and flyer) influenced participants' respective theories of intelligence. As discussed above, there was not a significant difference between the groups in terms of participant engagement with the intervention materials (poster and flyer). Yet all five participants in the focus group interview, each of whom shared stories of positive changes to their study habits as a result of the intervention, indicated they read and kept both the poster and the flyer. If the poster, which contained a key growth mindset message, played a role in reinforcing key messages, it is important to explore what made it an effective tool and determine how those lessons might be used to support future efforts.

A final element worth exploration is the context of the intervention. Practical constraints associated with time demands and scheduling make it difficult to implement frequent or lengthy intervention components. There may be other methods (e.g., online modules featuring well-known athletes) that could deliver key growth mindset messages with minimal disruption. It is important to note, however, that while football was the primary context through which the intervention was designed, it was situated within a broader context of historical achievement gaps among low-income and minority students.

It was stated at the outset of this paper that African American football players comprise the largest demographic subset of nonqualifiers (high school student-athletes who fail to meet NCAA requirements for eligibility). High school student-athletes who find they have failed to meet NCAA requirements often also find that the door to college has been closed. Eligibility for NCAA athletics is often perceived as a high stakes endeavor with implications not only for these individuals, but also their families and the

communities from which they come. A study by Niiya, Brook, and Crocker (2010) showed that when self-worth is contingent on academic success, those with an incremental theory of intelligence self-handicap to protect their self-esteem from the threat of failure. Said differently, even those who tend to have a growth mindset might perceive high-stakes academic endeavors (e.g., NCAA eligibility) as settings in which they are judged as capable or incapable of a given task. This impacts the types of goals they set and subsequent participation in academic behaviors promoting success (Dweck & Leggett, 1988; Chen & Pajares, 2010). If the NCAA is to be successful promoting a growth mindset among high school student-athletes, it must seek to position NCAA eligibility not as a high-stakes contingency, but as a long-term process in support of overall college readiness.

Summative Statements

The present study sought to draw on findings from prior growth mindset intervention research to develop a specific set of inputs (i.e., intervention activities) that met the needs of my professional setting. Previous interventions have taken place in labs (Steele & Aronson, 1995), in classrooms (Blackwell et al., 2007), and through online modules (Paunesku et al., 2015). The activities in the present study, on the other hand, took place on football fields and in locker rooms. The contexts of previous studies facilitated certain intervention components such as pen pal activities to reinforce the belief that intelligence is malleable (Aronson et al., 2002) and other multi-stage intervention procedures (Blackwell et al., 2007) that were impractical within the previously-mentioned constraints of my professional setting.

The NCAA's commitment to academic achievement for its student-athletes is situated within the context of societal factors, school factors, family factors, and individual factors influencing student achievement. Simply because the present study did not observe the hypothesized effect does not mean the NCAA should assume it plays no role in promoting academic motivation. This study showed that the NCAA intervention served as an "eye opener" for participants as it relates to academic performance, athletic recruitment, and the college admission process. With recognition that unfamiliarity with the college admission process is a barrier to college for many among low-income and minority students (Roderick et al., 2009), the NCAA can and should use its considerable influence to ensure that high school student-athletes know the steps necessary to attend college.

Prior research shows that interventions targeting a student's academic mindset can impact academic motivation and subsequent academic achievement (Blackwell, et al., 2007; Dweck & Leggett, 1988; Dweck et al., 2011; Farrington et al., 2012; Walton, 2014; Yeager & Walton, 2011). Since many student-athletes practice the application of social cognitive theories (e.g., goal-setting, performance monitoring, adjustment, belief in ability, etc.) in the context of their athletic development (Spray et al., 2006), the NCAA should consider, therefore, drawing on the connection between implicit theories of intelligence and athletic strength and conditioning through the incorporation of growth mindset practices in its education efforts.

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Appendix A

NCAA Communication Survey

Basic information

First Name

Last Name

1. Please circle the grade you are in:

   9 10 11 12

2. Please circle the race that applies to you:

   Asian Black Hispanic Multicultural White Other/Prefer not to respond

The requirements to be eligible for NCAA Division I competition are increasing in 2016. Please answer the following questions to the best of your ability.

3. To be eligible to compete in Division I, the new minimum core-course GPA is:
   2.5 2.0 1.8 2.3
4. How many core courses are required to be eligible for competing in the NCAA?
   10 12 14 16
5. Under the new Division I initial-eligibility standards, how many core courses must be completed prior to the beginning of the seventh (7th) semester of high school?

   a. 10 core courses, 7 must be in English, math, or science

   b. 7 core courses in any subject area

   c. 10 core courses in any subject area

   d. 12 core courses, 10 must be in English, math or science

Please place a check mark in the box that best describes how you feel about the following statements.

	Strongly Agree	Agree	Mostly Agree	Mostly Disagree	Disagree	Strongly Disagree
6. I can learn new things, but I can't really change my basic intelligence.						
7. My intelligence is something about me that						

	Strongly Agree	Agree	Mostly Agree	Mostly Disagree	Disagree	Strongly Disagree
I can't change very much.						
8. I have a certain amount of intelligence and I really can't do much to change it.						
9. An important reason why I do my schoolwork is because I like to learn new things.						
10. I like schoolwork best when it really makes me think.						
11. I like schoolwork that I'll learn from, even if I make a lot of mistakes.						
12. When I work hard at my schoolwork, it makes me feel like I'm not very smart.						
13. It doesn't matter how hard I work—if I'm not smart, I won't do well.						
14. If I'm not good at a subject, working hard won't make me good at it.						
15. If a subject is hard for me, it means I probably won't be able to do really well at it.						
16. If I'm not doing well at something, it's better to try something easier.						
17. When something is hard, it just makes me want to work more on it, not less.						
18. If I don't work hard and put in a lot of effort, I probably won't do well.						
19. The harder I work at something, the better I will be at it.						

Appendix B

NCAA Communication Survey

Basic information

First Name

Last Name

1. Please circle the grade you are in:

   9 10 11 12

2. Please circle the race that applies to you:

   Asian Black Hispanic Multicultural White Other/Prefer not to respond

The requirements to be eligible for NCAA Division I competition are increasing in 2016. Please answer the following questions to the best of your ability.

3. To be eligible to compete in Division I, the new minimum core-course GPA is:

   2.5 2.0 1.8 2.3

4. How many core courses are required to be eligible for competing in the NCAA?

   10 12 14 16

5. Under the new Division I initial-eligibility standards, how many core courses must be completed prior to the beginning of the seventh (7th) semester of high school?

   e. 10 core courses, 7 must be in English, math, or science

   f. 7 core courses in any subject area

   g. 10 core courses in any subject area

   h. 12 core courses, 10 must be in English, math or science

Please place a check mark in the box that best describes how you feel about the following statements.

	Strongly Agree	Agree	Mostly Agree	Mostly Disagree	Disagree	Strongly Disagree
6. I can learn new things, but I can't really change my basic intelligence.						
7. My intelligence is something about me that I can't change very much.						
8. I have a certain amount of intelligence and I						

	Strongly Agree	Agree	Mostly Agree	Mostly Disagree	Disagree	Strongly Disagree
really can't do much to change it.						
9. An important reason why I do my schoolwork is because I like to learn new things.						
10. I like schoolwork best when it really makes me think.						
11. I like schoolwork that I'll learn from, even if I make a lot of mistakes.						
12. When I work hard at my schoolwork, it makes me feel like I'm not very smart.						
13. It doesn't matter how hard I work—if I'm not smart, I won't do well.						
14. If I'm not good at a subject, working hard won't make me good at it.						
15. If a subject is hard for me, it means I probably won't be able to do really well at it.						
16. If I'm not doing well at something, it's better to try something easier.						
17. When something is hard, it just makes me want to work more on it, not less.						
18. If I don't work hard and put in a lot of effort, I probably won't do well.						
19. The harder I work at something, the better I will be at it.						

Please circle your response to each of the following questions.

20. Did you receive the flyer that included information about NCAA academic requirements?

    Yes No

21. Did you read the flyer?

    Yes No Not applicable

22. Did you keep the flyer?

    Yes No Not applicable

23. Did you receive the 2.3 poster?

    Yes No

24. Did you read the language on the poster?

    Yes No Not applicable

25. Did you keep the poster?

    Yes No Not applicable

Appendix C

Post-Intervention Focus Group Questions

The following questions represent initial interview questions. Follow-up questions based on participant responses may be asked.

1. What did you learn about the NCAA recruiting process as a result of the NCAA activities you experienced this season?
2. Raise your hand…Did you hear the guest speaker?
    a. For those of you that raised your hand, what do you remember from his talk?
3. I'm going to give you a piece of paper and I want you to complete these thoughts: "I used to think…but now I think… about learning"
    a. What parts the NCAA activities you experienced this season, if any, shifted your thinking?
    b. Has anyone ever told you that when you believe you can get smarter, you get smarter…or told you something similar to this statement? If so, please explain.
4. Talk about a time this fall, if any, when you almost gave up on homework or studying for a test but kept working anyway.
5. Do you feel more motivated to do well in school after the NCAA activities you experienced this season?
    a. If so, in what ways are you more motivated? What, in particular, makes you feel that way?

6. In what ways do you think physical strength and conditioning is similar to learning?
7. Are you more likely to believe your own opinion of your intelligence or the opinions of others? Why?

Appendix D

Informational Flyer

NCAA Eligibility Center

2016 Division I Academic Requirements

Initial-eligibility standards for NCAA Division I college-bound student-athletes are changing.

College-bound student-athletes first enrolling at an NCAA Division I school on or after August 1, 2016, will need to meet the following academic rules to practice, compete and receive athletics scholarships during their first year.

Full Qualifier	Academic Redshirt
• Complete 16 core courses: ▪ Ten of the 16 core courses must be completed before the seventh semester (senior year) of high school ▪ Seven of the 10 core courses must be in English, math, or science	• Complete 16 core courses
• Earn a core-course GPA of at least 2.300	• Earn a core-course GPA of at least 2.000
• Earn the ACT/SAT score matching your core-course GPA on the Division I sliding scale (see back page)	• Earn the ACT/SAT score matching your core-course GPA on the Division I sliding scale (see back page)
• Graduate high school	• Graduate high school

Full Qualifier: College-bound student-athletes may practice, compete and receive athletics scholarship during their first year of enrollment at an NCAA Division I school.

Academic Redshirt: College-bound student-athletes may receive athletics scholarships during their first year of enrollment and may practice during their first regular academic term but may NOT compete during their first year of enrollment.

Nonqualifier: College-bound student-athletes cannot practice, receive athletics scholarships or compete during their first year of enrollment at an NCAA Division I school.

After August 1, 2016

1. A college-bound student-athlete completes nine core courses prior to the seventh semester of high school. However, he/she is an **academic redshirt** because only nine of the 10 required courses were completed before the seventh semester. He/she would be permitted to practice and receive scholarships, provided he/she presents 16 core courses and meets the minimum core-course GPA and test-score requirement at the time of graduation.

2. A college-bound student-athlete completes 16 core courses in the required coursework with a 2.300 core-course GPA and a 79 sum ACT. The college-bound student-athlete is **full qualifier** under the new sliding scale because the minimum GPA requirement is 2.300 with an ACT sum score of at least 75.

3. A college-bound student-athlete completes 15 core courses with a 2.500 core-course GPA and an 820 SAT score (critical reading and math). The college-bound student-athlete is a **nonqualifier** because only 15 core courses were completed, not the required 16 core courses.

Updated: July 30, 2015

Page 1 of 2

DIVISION I FULL QUALIFER SLIDING SCALE		
Use for Division I beginning August 1, 2016		
Core GPA	SAT Reading/Math	ACT Sum
3.550	400	37
3.525	410	38
3.500	420	39
3.475	430	40
3.450	440	41
3.425	450	41
3.400	460	42
3.375	470	42
3.350	480	43
3.325	490	44
3.300	500	44
3.275	510	45
3.250	520	46
3.225	530	46
3.200	540	47
3.175	550	47
3.150	560	48
3.125	570	49
3.100	580	49
3.075	590	50
3.050	600	50
3.025	610	51
3.000	620	52
2.975	630	52
2.950	640	53
2.925	650	53
2.900	660	54
2.875	670	55
2.850	680	56
2.825	690	56
2.800	700	57
2.775	710	58
2.750	720	59
2.725	730	60
2.700	740	61
2.675	750	61
2.650	760	62
2.625	770	63
2.600	780	64
2.575	790	65
2.550	800	66
2.525	810	67
2.500	820	68
2.475	830	69
2.450	840	70
2.425	850	70
2.400	860	71
2.375	870	72
2.350	880	73
2.325	890	74
2.300	900	75
2.299	910	76
2.275	910	76
2.250	920	77
2.225	930	78
2.200	940	79
2.175	950	80
2.150	960	81
2.125	970	82
2.100	980	83
2.075	990	84
2.050	1000	85
2.025	1010	86
2.000	1020	86

ACADEMIC REDSHIRT

NCAA Eligibility Center

2018 Division II New Academic Requirements

Initial-eligibility standards for NCAA Division II college-bound student-athletes are changing.

College-bound student-athletes first enrolling at an NCAA Division II school on or after August 1, 2018, need to meet new academic rules to practice, compete and receive athletics scholarships during their first year.

Full Qualifier	Partial Qualifier
• Complete 16 core courses	• Complete 16 core courses
• Earn a core-course GPA of at least 2.200	• Earn a core-course GPA of at least 2.000
• Earn the ACT/SAT score matching your core-course GPA on the Division II sliding scale (see back page)	• Earn the ACT/SAT score matching your core-course GPA on the Division II sliding scale (see back page)
• Graduate high school	• Graduate high school

Full Qualifier: College-bound student-athletes may practice, compete and receive athletics scholarship during their first year of enrollment at an NCAA Division II school.

Partial Qualifier: College-bound student-athletes may receive athletics scholarships during their first year of enrollment and may practice during their first regular academic term but may NOT compete during their first year of enrollment.

Nonqualifier: College-bound student-athletes may not practice, compete or receive athletics scholarships during their first year of enrollment at an NCAA Division II school.

After August 1, 2018

1. A college-bound student-athlete completes 15 core courses, earns a 2.200 core-course GPA and earns an 840 SAT score. He/she would be a **nonqualifier** because he/she did not complete the 16 required core courses. He/she would not be permitted to practice, compete or receive scholarships during his/her first year of full-time enrollment at an NCAA Division II school.

2. A college-bound student-athlete completes 16 core courses, earns a 2.000 core-course GPA and earns a 68 sum ACT score. He/she would be a **partial qualifier** because he/she did not meet the minimum core-course GPA to match the ACT score on the Division II sliding scale (see back page).

3. A college-bound student-athlete completes 16 core courses with a 2.500 core-course GPA and earns an 820 SAT score. He/she would be a **full qualifier** because he/she meets the minimum core-course GPA to match their SAT score on the Division II sliding scale (see back page).

NCAA Eligibility Center

DIVISION II FULL QUALIFIER SLIDING SCALE		
Use for Division II beginning August 1, 2018		
Core GPA	SAT Reading/Math	ACT Sum
3.300 & above	400	37
3.275	410	38
3.250	420	39
3.225	430	40
3.200	440	41
3.175	450	41
3.150	460	42
3.125	470	42
3.100	480	43
3.075	490	44
3.050	500	44
3.025	510	45
3.000	520	46
2.975	530	46
2.950	540	47
2.925	550	47
2.900	560	48
2.875	570	49
2.850	580	49
2.825	590	50
2.800	600	50
2.775	610	51
2.750	620	52
2.725	630	52
2.700	640	53
2.675	650	53
2.650	660	54
2.625	670	55
2.600	680	56
2.575	690	56
2.550	700	57
2.525	710	58
2.500	720	59
2.475	730	60
2.450	740	61
2.425	750	61
2.400	760	62
2.375	770	63
2.350	780	64
2.325	790	65
2.300	800	66
2.275	810	67
2.250	820	68
2.225	830	69
2.200	840 & above	70 & above

DIVISION II PARTIAL QUALIFIER SLIDING SCALE		
Use for Division II beginning August 1, 2018		
Core GPA	SAT Reading/Math	ACT Sum
3.050 & above	400	37
3.025	410	38
3.000	420	39
2.975	430	40
2.950	440	41
2.925	450	41
2.900	460	42
2.875	470	42
2.850	480	43
2.825	490	44
2.800	500	44
2.775	510	45
2.750	520	46
2.725	530	46
2.700	540	47
2.675	550	47
2.650	560	48
2.625	570	49
2.600	580	49
2.575	590	50
2.550	600	50
2.525	610	51
2.500	620	52
2.475	630	52
2.450	640	53
2.425	650	53
2.400	660	54
2.375	670	55
2.350	680	56
2.325	690	56
2.300	700	57
2.275	710	58
2.250	720	59
2.225	730	60
2.200	740	61
2.175	750	61
2.150	760	62
2.125	770	63
2.100	780	64
2.075	790	65
2.050	800	66
2.025	810	67
2.000	820 & above	68 & above

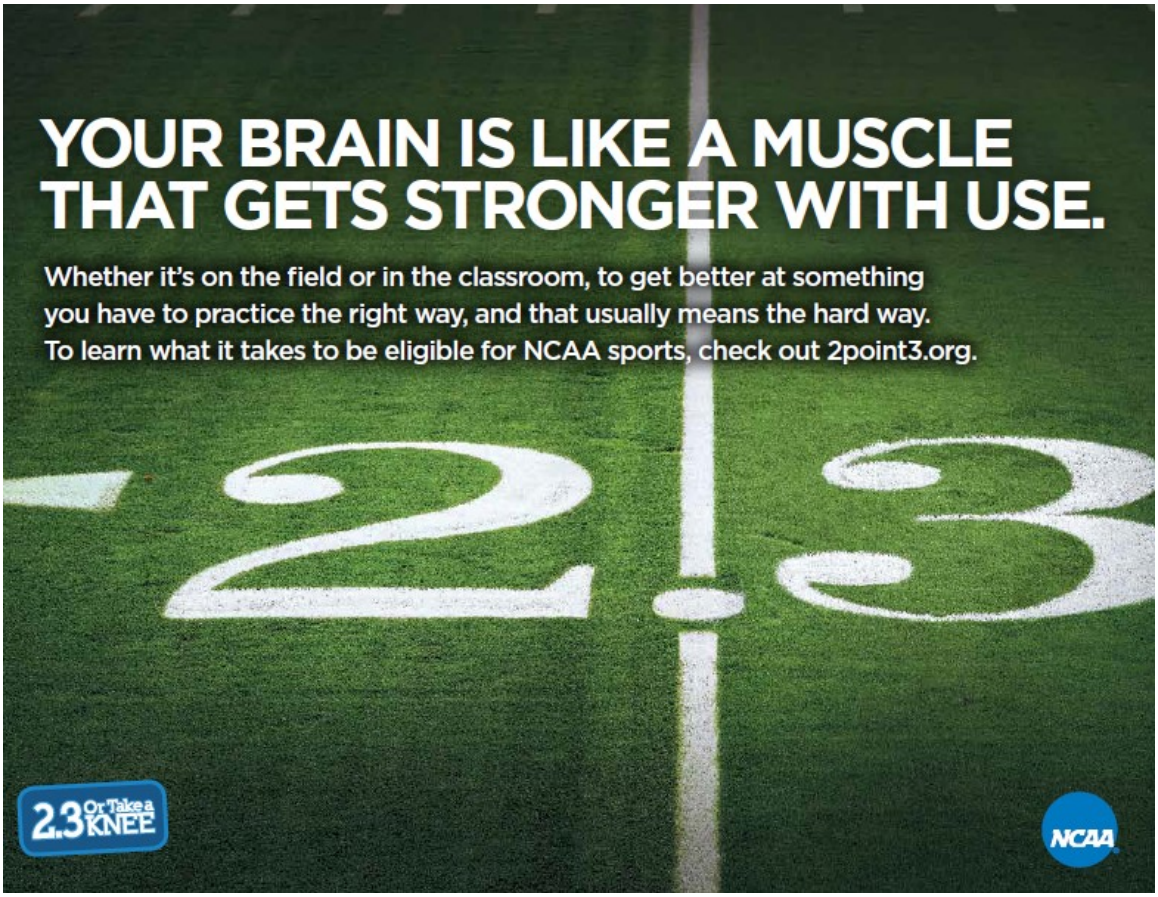
Updated: February 26, 15

Appendix E

Poster – Comparison Group

Appendix F

Poster – Treatment Group



Appendix G

Guest Speaker Script – Comparison Group

Introduction

My name is [redacted] and I serve as [redacted] for [redacted] at the NCAA national office. Prior to my time at the NCAA, I worked in the athletics departments at [redacted] and [redacted]. My undergraduate degree and law degree are both from the University of [redacted]. I'm here to talk to you today about the process of becoming an NCAA student-athlete.

Recruitment

I want to begin by asking you guys…Who is the best player on the team? Alright, now let me ask you another question…when you play pickup ball, how do you choose your teammates? You pick the best people first because you want to win. Right? You don't pick the guy that's in the middle…you pick the best available guy. You don't want the guy that can barely throw, doesn't run so fast, and only catches half of what's thrown to him. You want the A player…the guy that knows all the plays…makes good decisions…and is in top form athletically. You don't want the C player…the guy that can barely catch…barely block…barely remembers the playbook, right?

Now let me ask you this…how you think colleges recruit the guys they want? Do you think they're only looking at how well a guy does on the field? Or are they looking at academics too? That's right. These are universities that are competitive not only on the field, but also when it comes to things like alumni job placement and research funding. So when a coach is recruiting, do you think they're looking for the guy who gets Cs or the guy who gets As? That's right…they're looking for the guys that are As

on the field AND in the classroom. **If you don't perform academically, coaches may not want to recruit you.**

NCAA Requirements

So some of you may know this, but the NCAA has minimum requirements in order to be eligible coming out of high school. That's right. **The NCAA holds high school students accountable for good academic preparation. You have to have 16 core courses.** Not just any courses. 16 courses that are on your school's NCAA list. You have to get **10 of them done before your senior year, with 7 of those 10 in English, Math, or Science**. And not only that, but you have to have a good SAT/ACT score and **a minimum of a 2.3 GPA** within those courses for Division I. **It's 2.3 or take a knee…because you won't see the field of competition in your freshman year without it.**

Now some of you hear 2.3 GPA and think that sounds easy. Others of you hear 2.3 GPA and think it sounds hard. But let me tell what a 2.3 GPA is. It's a little better than a C average. So guess what that means. It means you have better than a C average in the classroom to even get a sniff at playing college ball. **You've got to have the grades or you'll be on the bench.**

Probability of Going Pro

So now here's an interesting question. How many of you think you want to try to make it to the NFL? Let me tell you what our research folks tell us. There are about a million high school football players in the country each year. You know how many will end up playing in the NCAA? 70,000. That's about 7%. And of those 70,000 guys that play ball in college, what percent do you think end up playing in the league? Only about

1 or 2 out of every 100. Just 1-2% of all college football players end up playing professionally.

I saw a lot of you raise your hands when I asked if you wanted to try to make it to the NFL. And that's not a bad thing. It's great to set goals for yourselves and try to reach your dreams. But here's the important thing: **For a lot of you, football is your plan A, and your education is your plan B. I'm here to tell you that your plan B should be your plan A.** That means putting in the hard work now so you have choices when it comes time to figure out what you want to do when you graduate from high school.

I want to tell you a personal story. It's a tale of three brothers. All three of us went to college to play sports. One of us is an attorney, another is an engineer, and the other made it to the pros. None of us went to college with plan A as our plan. Plan B was always the main plan. Going pro materialized for one brother, but not the other two. And since we made education our plan A, it put each of us in a position to be successful even though the pros only worked out for one of us.

When you make education your plan A, it opens up opportunities. Not only does is pave the way to maybe earn an athletics scholarship…but the better of a student you are, the more choices you have. And the more choices you have, the more freedom you have. Some of you may get invited to take official visits. Those are the visits that the colleges pay for. If you put education as your plan A…that means YOU get to be the picky one. You are in the driver's seat. So when you're on those visits, I want you to think about doing something that might seem strange. I want you to think about what it might be like to be a benchwarmer at that school. Now I know everyone thinks they're

going to be the next big thing…but you've got to understand that the coach you play for is always out recruiting someone to replace you. And even if you are still the best…what happens if you get injured? See this scar? It ended my college career. I was 20 years old and my mom was wiping my rear end. It was terrible. But because I made education my plan A, I was still in the driver's seat.

Conclusion

A few weeks ago you guys got a poster and a flyer with information about what it takes to become an NCAA student-athlete. I hope you read it. I hope you hung that poster up somewhere to remind you the importance of doing well in school. Take advantage of your coaches…your teammates…and your school counselors. **Make sure you're on track for getting the 16 core courses. Make sure you're getting 10 of the 16 before the start of your senior year. Make sure you're above that 2.3 GPA.** Put yourself in a position to have choices. And know that there are a ton of resources for you on the Eligibility Center website if you have questions.

Appendix H

Guest Speaker Script – Treatment Group

Introduction

My name is [redacted] and I serve as [redacted] for [redacted] at the NCAA national office. Prior to my time at the NCAA, I worked in the athletics departments at [redacted] and [redacted]. My undergraduate degree and law degree are both from the University of [redacted]. I'm here to talk to you today about the process of becoming an NCAA student-athlete.

Initial Mindset Illustration

I want to start by asking everyone here to stand up. This is something I like to do when I'm talking to high school football players. I want the cool guys to stand on this side of the room…and I want the nerds to stand on the other side of the room.

Now I've got another one for you. I want to ask you about intelligence. **If you think that you only have a certain amount of intelligence and there really isn't much you can do to change it, stand on this side of the room. If you think that your intelligence is something that can be changed, I want you on the other side of the room.** Ok…you can have a seat. We'll come back to that later.

Recruitment

I want to begin by asking you guys…Who is the best player on the team? Alright, now let me ask you another question…when you play pickup ball, how do you choose your teammates? You pick the best people first because you want to win. Right? You don't pick the guy that's in the middle…you pick the best available guy. You don't want the guy that can barely throw, doesn't run so fast, and only catches half of what's thrown

to him. You want the A player…the guy that knows all the plays…makes good decisions…and is in top form athletically. You don't want the C player…the guy that can barely catch…barely block…barely remembers the playbook, right?

Now let me ask you this…how you think colleges recruit the guys they want? Do you think they're only looking at how well a guy does on the field? Or are they looking at academics too? That's right. These are universities that are competitive not only on the field, but also when it comes to things like alumni job placement and research funding. So when a coach is recruiting, do you think they're looking for the guy who gets Cs or the guy who gets As? That's right…**they're looking for the guys that are As on the field AND in the classroom.**

NCAA Requirements

So some of you may know this, but the NCAA has minimum requirements in order to be eligible coming out of high school. That's right. **You have to have 16 core courses.** Not just any courses. 16 courses that are on your school's NCAA list. You have to get **10 of them done before your senior year, with 7 of those 10 in English, Math, or Science.** And not only that, but you have to have a good SAT/ACT score and a **minimum of a 2.3 GPA** within those courses for Division I.

Now some of you hear 2.3 GPA and think that sounds easy. Others of you hear 2.3 GPA and think it sounds hard. But let me tell what a 2.3 GPA is. It's a little better than a C average. So guess what that means. It means you have better than a C average in the classroom to even get a sniff at playing college ball.

Probability of Going Pro

So now here's an interesting question. How many of you think you want to try to make it to the NFL? Let me tell you what our research folks tell us. There are about a million high school football players in the country each year. You know how many will end up playing in the NCAA? 70,000. That's about 7%. And of those 70,000 guys that play ball in college, what percent do you think end up playing in the league? Only about 1 or 2 out of every 100. Just 1-2% of all college football players end up playing professionally.

I saw a lot of you raise your hands when I asked if you wanted to try to make it to the NFL. And that's not a bad thing. It's great to set goals for yourselves and try to reach your dreams. But here's the important thing: **For a lot of you, football is your plan A, and your education is your plan B. I'm here to tell you that your plan B should be your plan A.** That means putting in the hard work now so you have choices when it comes time to figure out what you want to do when you graduate from high school.

I want to tell you a personal story. It's a tale of three brothers. All three of us went to college to play sports. One of us is an attorney, another is an engineer, and the other made it to the pros. None of us went to college with plan A as our plan. Plan B was always the main plan. Going pro materialized for one brother, but not the other two. And since we made education our plan A, it put each of us in a position to be successful even though the pros only worked out for one of us.

When you make education your plan A, it opens up opportunities. Not only does is pave the way to maybe earn an athletics scholarship…but the better of a student you are, the more choices you have. And the more choices you have, the more freedom you

have. Some of you may get invited to take official visits. Those are the visits that the colleges pay for. If you put education as your plan A…that means YOU get to be the picky one. You are in the driver's seat. So when you're on those visits, I want you to think about doing something that might seem strange. I want you to think about what it might be like to be a benchwarmer at that school. Now I know everyone thinks they're going to be the next big thing…but you've got to understand that the coach you play for is always out recruiting someone to replace you. And even if you are still the best…what happens if you get injured? See this scar? It ended my college career. I was 20 years old and my mom was wiping my rear end. It was terrible. But because I made education my plan A, I was still in the driver's seat.

Growth Mindset

So what does it mean to put education as your plan A? I'm here to let you in on something important. New research is showing that doing well in school isn't necessarily about "trying hard" but instead about understanding that your intelligence is malleable. You know what that word means? Malleable? It means changeable, shapeable, bendable. That's right. Emerging research is showing that when you believe that your intelligence is malleable, your brain - and all of its neurons - literally rewires itself to be smarter. Basically, **believing you can get smarter makes you smarter**. A lot of people think of the brain as a mystery, but the truth is that **science shows that your brain is like a muscle that gets stronger with use.**

Just like physical conditioning…all of the work you guys put in in the weight room…, students who embrace mental challenges are more likely to do well in

school. Your brain rewires itself to be stronger when you persevere through challenges.

Many people miss out on the chance to grow a stronger brain because they think it's too hard. But just like lifting weights, the pain brings gain. And when you see yourself grow mentally, you'll see the work was worth it.

Mindset Story

I want to share a story with you about a good friend of mine [redacted]. [redacted] grew up in Harlem and was basically raised by his sister. His mom died of Hodgkin's Lymphoma and his dad OD'd when he was 12 years old. He was recruited to play all over the place and ended up going as far away from Harlem has he could get, which was Emporia State. But here's the thing. When he got there, he realized he could barely read. All his life, teachers had just passed him on from class to class…from grade to grade. So what do you think he did? You think he was OK with barely being able to read? No. He decided he didn't want to go back to Harlem. He made the decision that he was going to teach himself to read…and that's exactly what he did. You want to know what happen to [redacted]? He not only earned his college degree from Emporia State…he went on to earn his MBA – which is a master's of business degree – AND his law school degree from the University of Kansas. He's now a college professor.

But did you catch why I told you that story? I told you that story because [redacted] didn't let himself believe that he was only born with a certain amount of intelligence. No, he believed that he was capable of learning, and **because he believed he could get smarter, he got smarter.**

A few weeks ago you guys got a poster and a flyer with information about what it takes to become an NCAA student-athlete. I hope you read it. I hope you hung that poster up somewhere to remind you the importance of doing well in school. Take advantage of your coaches…your teammates…and your school counselors. Put yourself in a position to have choices. And know that there are a ton of resources for you on the Eligibility Center website if you have questions.

Second Mindset Illustration

Before I leave, I want everyone to stand up one more time. Remember a few minutes ago, I asked you to move to one side of the room or the other based on your beliefs about intelligence. I'm going to ask you one more time. If you think that you only have a certain amount of intelligence and there really isn't much you can do to change it, I want you to stand on this side of the room. And if you think that your intelligence is something that can be changed, I want you on the other side of the room.

Don't forget: your brain is like a muscle that gets stronger with use. Believing you can get smarter makes you smarter. Thanks for your time today and have a great rest of the season.

Nicholas D. Sproull

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EDUCATION

- The Johns Hopkins University
  - Doctor of Education, Entrepreneurial Leadership in Education, 2016
  - Dissertation title: A Mixed Methods Study Examining the Effects of a Growth Mindset Intervention Targeting High School Football Players
  - Dissertation chair: Stephen Pape, Ph.D.
    - Committee members: Thomas Paskus, Ph.D. and Eric Rice, Ph.D.
- Michigan State University
  - Master of Arts in Education, K-12 and Postsecondary Educational Leadership, 2012
- Harvard Graduate School of Education
  - Certificate, Future of Learning Institute, 2011
- Butler University
  - Bachelor of Arts in Music with Honors, 2002

PROFESSIONAL EXPERIENCE

National Collegiate Athletic Association (NCAA)

Director of High School Review, June 2007 to present

- Lead and manage all aspects of the Eligibility Center's high school review and core-course review processes.
  - Ensure operational processes and criteria for review are in alignment with NCAA legislation, policies, and procedures as established by the NCAA High School Review Committee.
  - Develop a culture of continuous improvement aimed at enhancing the efficacy of the high school review staff's technological and human resources.
  - Develop metrics and reporting tools that help measure and streamline review processes.
  - Monitor the workflow, productivity, and quality control of review processes.
  - Track high-profile issues and ensure office of legal affairs, public and media relations, and other appropriate internal groups are aware as appropriate.
  - Lead the recruitment, hiring, training, and performance management of the high school review staff.
  - Serve as primary staff liaison to the NCAA High School Review Committee.
  - Manage the high school review budget.
- Education Policy.
  - Provide strategic leadership related to secondary education policy and legislation relevant to the Association.
  - Develop and maintain a strong knowledge and understanding of secondary education policy as it relates to traditional and nontraditional education and its linkage to post-secondary education.

    - Provide leadership and professional development to NCAA staff regarding education policy issues and trends.
- Relationship Management.
    - Establish and maintain relationships with leading national education organizations.
    - Coordinate local, regional and national speaking engagements and webinars.
    - Assist in development of educational materials for various constituents.

Johns Hopkins University
Teaching Assistant, Fall 2015
- ED.855.712 Multiple Perspectives on Learning and Teaching: This course surveys classical theoretical perspectives on learning and teaching including behaviorism, cognitive, constructivist, sociocultural, social cognitive, and situative perspectives.

Butler University
Adjunct Professor, Spring 2013
- ED 244 Concepts of Education: Required undergraduate course for education majors that examines the sociological, historical, political, legal and economic concepts in education.

Cathedral High School
College and Academic Advisor, **A**ugust 2005 – June 2007
- Guided juniors and seniors and their families through the college search and admission/financial aid processes. Responsible for academic advising, course scheduling, and letters of recommendation.
- Maintained relationships with admission representatives nationwide.
- Grant recipient; created comprehensive program designed to encourage students to broaden awareness of college options.
- Coordinator for Federal TRIO Programs, 21st Century Scholars Program, IU Groups Program, Summer Programs and Junior Planning Day.

Butler University
Senior Admission Counselor, June 2002 – August 2005
- Faculty Liaison – served as primary relationship manager between the Office of Admission and university faculty.
- Managed strategic recruiting efforts with the Colleges of Business, Education, Liberal Arts and Sciences and the Jordan College of Fine Arts. Managed budget of approximately $13,000.
- Admission decisions for 500-600 applicants annually.
- Supervisor for the Butler Student Ambassadors – managed budget of $10,000.

SELECTED WRITINGS AND OTHER RESOURCES

Hosick, M. B., & Sproull, N. (2012). NCAA: Eligibility and success. *Journal of College Admission*, *217*, 31-33.

Sproull, N. (May 13, 2012). *Think Outside the LMS.* In InsideHigherEd. Retrieved April 30, 2012, from http://www.insidehighered.com/blogs/gradhacker/think-outside-lms.

Patrick, S. & Sproull, N. (April 1, 2013). *Does the NCAA Allow Online Courses or Competency-based Education?*. In CompetencyWorks. Retrieved May 2, 2013, from http://www.competencyworks.org/2013/04/does-the-ncaa-allow-online-courses-or-competency-based-education/.

SELECTED PANELS & PRESENTATIONS

Shukie, J. & Sproull, N. (2010). *Division I Pre-Enrollment Academic Certification Issues***.** NCAA Regional Rules Seminar, Tampa, FL.

Roesler, L. & Sproull, N. (2012). *NCAA Eligibility Center: Advanced.* National Association for College Admission Counseling Annual Meeting, Denver, CO.

Hicks, M. & Sproull, N. (2012). *NCAA Eligibility Center: Maximizing Your Experience.* Virtual School Symposium of the International Association for K-12 Online Learning, New Orleans, LA.

Baker, R., Byrd, B., Gurney, G., Perko, A. & Sproull, N. (2013). *The Grand Experiment Revisited: Balancing Academics and Athletics.* Panel discussion at the College Sports Research Institute, University of North Carolina at Chapel Hill.

Sproull, N. (2013). *NCAA Eligibility Center: Overview and Updates.* Presentation to select district administrators from the Miami-Dade, Broward and Palm Beach school districts, Fort Lauderdale, FL.

Sproull, N. (2013). *NCAA Eligibility Center: Overview and Updates.* Presentation to select district administrators from the New York City Department of Education, New York, NY.

HONORS AND AWARDS

- Aileen and Gilbert Schiffman Fellowship. Established in 1996 by a gift from The Hodson Trust in memory of Gil Schiffman, professor emeritus and former director of the Graduate Division of Education.
- Finalist for the inaugural NCAA President's Award, the most prestigious award given to an NCAA staff member who exhibits the qualities of leadership, collaboration, communication, inclusion and accountability; 2011.

- Named a "Top Ten Outstanding Male Student." Since 1961, the program has honored those students who, through campus leadership, community involvement and academic performance are great assets to Butler University; 2002.

ACTIVITIES

- Board Member, Butler University College of Education; 2013 – present.
- Student-Athlete Advisory Committee, National Association for College Admission Counseling (NACAC); 2009-present.
- Advocacy and Issues Committee, International Association for K-12 Online Learning (iNACOL); 2011-2013
- Superintendent's Senior Advisory Council, Lebanon Community School Corporation; 2009-10.